DOCUMENT RESUME

ED 352 523 CE 062 680

TITLE	Applied Workplace Literacy for the Facilities Maintenance Industry. Performance Report and Third Party Evaluation Report.
INSTITUTION	Texas State Technical Coll., Waco.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, DC. National Workplace Literacy Program.
PUB DATE	92
CONTRACT	V198A10073
NOTE	109p.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	Adult Basic Education; *Adult Literacy; Educational Innovation; Educational Technology; Facilities; Instructional Design; *Instructional Material Evaluation; *Interactive Video; Learning Modules; Maintenance; Material Development; *Mathematics Instruction; *Multimedia Instruction; Outcomes of Education; Programed Instruction; Program Effectiveness; *Videodisks
IDENTIFIERS	*Workplace Literacy

ABSTRACT

A project was conducted to determine if interactive video programs could produce positive results in literacy programs. During the project, staff from a technical college developed a task analysis, curriculum, and evaluation measures for the training of facilities maintenance workers in mathematical concepts. From this activity, an instructional design, workbook activities, and a videodisc were developed. Thirty physical plant employees volunteered for training and participated based on their level as determined by assessment. Each participant worked individually on a prescribed lesson plan for 6 hours per week, completed videodisc units, and used workbook exercises. The project was able to increase the skills of all participants, with those who scored lowest on the preliminary evaluation making the largest gains. There were no significant differences in results based on age or gender. The results of the project indicated that videodisc technology is an effective and convenient method of delivering instruction. A third-party evaluation concurred with the project staff evaluation. Project results were disseminated at conferences and demonstrations to companies interested in workplace literacy. (The report contains many tables and graphs, seven references, and the external evaluation report.) (KC)

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ED352528

Performance Report of Applied Workplace Literacy for the Facilities Maintenance Industry
Project Award No. V198A10073
Texas State Technical College
Waco, Texas

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1. Compare actual accomplishments to the objectives contained in the approved application.

Introduction

As shown in a variety of publications to include the Hudson Institute's Workplace 2000 and the SCANS Report, the United States faces a crises in the workplace, and one industry needing workers with basic literacy skills is the facilities maintenance business sector. Toxic chemicals, safety reports, and computerization issues all add to a facilities maintenance workplace that is rapidly changing and necessitates a skilled workforce to accommodate that change. Chemicals mixed in the wrong formula, measurements not correctly read, and geometric shape miscalculation contribute to lower productivity and increased service cost. With these problems noted, ServiceMaster, one of the largest facility maintenance companies in the world, partnered with Texas State Technical College Waco to develop a contextual-based videodisc curriculum for facility maintenance workers intended to increase math literacy skills.

Texas State Technical College Waco had been pioneering several applied curriculum delivery methods through the Center for Applied Learning and developing technology-enhanced curriculum and training through the IDEAS Center. Research and

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application found that a comprehensive interactive delivery system with the appropriate peripherals could provide the delivery strategy necessary to increase literacy scores for the facilities maintenance scores. The questions, then, to resolve in this study were: (a) Would a contextual multimedia training program increase math literacy levels for facilities maintenance personnel who most need help; and (b), would there be any differences regarding age and gender. The appropriate parties completed the partnership agreements, and the program began in April, 1991.

Review of the Literature

Instructional Technology. Interactive multimedia has consistently shown to be a very diverse instructional technology medium (Bosco, 1986). When appropriately designed and implemented, test results have shown to be positive in comparison to traditional delivery systems when adults are the target audience (Hannafin & Colamaio, 1987; Hannafin & Phillips, 1987; and Ziegler, 1990).

Adult Literacy. Adult literacy programs have, in general, been delivered in traditional formats (Campbell & Sechler, 1987). Many studies (Long, 1980; Lotto, 1983) have shown successful results in delivering contextual literacy training, yet, traditional methodologies have remained the delivery focus. According to Campbell and Sechler (1987), recommendations for research include:

1. Conduct systematic research of the basic skills as they apply to occupational of adult basic education.
2. Identify and assess alternative delivery practices for adult basic literacy;

This research agenda hints at two questions concerning all education: (a) what to

teach and (b) how to teach it. This study, then, set forth to determine if interactive multimedia (how to teach) could produce positive results in literacy programs (what to teach) and answer of the questions set forth by the research agenda of Campbell and Sechler (1987).

Methodology

Product Development. Staff from Texas State Technical College Waco developed a task analysis, curriculum, and evaluation measures for the training of facilities maintenance workers in math concepts. From this, the appropriate instructional design, workbook activities, and scripting activities for the videodisc were developed. Synergistic Educational Technology Systems served as the production group for both the videodisc and software. Shot on location with Texas State Technical College Waco physical plant employees as actors, development time took four months for a usable training product.

Audience. As shown in Figures 1, 2, and 3, the total population reflected a diverse ethnic population in a variety of age categories with a variety of levels of education. The sample mirrored that population (Figures 4, 5, and 6). Using the SelectABLE as an assessment tool, the results suggested three distinct groups: (a) 0 - 4th grade level; (b) 5th to 8th grade level; and (c), 9th and above. Thirty physical plant employees volunteered for training and participated based on their level as determined by the assessment.

Implementation. Each group was further assessed using the ABLE test to establish a pretest score. From here, each participant received training from the videodisc. As this was an individualized program, each participant worked in a

prescribed lesson plan six hours per week as dictated by the videodisc's pretest. Upon completion of each videodisc unit, the participants undertook accompanying workbook exercises for additional practice. Level 3 participants completed the training much more quickly than the Level 1 group as they originally could master more of the math competencies. Average completion time of the program was 60 hours. The ABLE test was administered to determine posttest scores.

Variables. For this study, posttest scores (number operations and problem solving) on the ABLE test were used as the dependent variables. Independent variables were age and gender. The pretest served as the covariate.

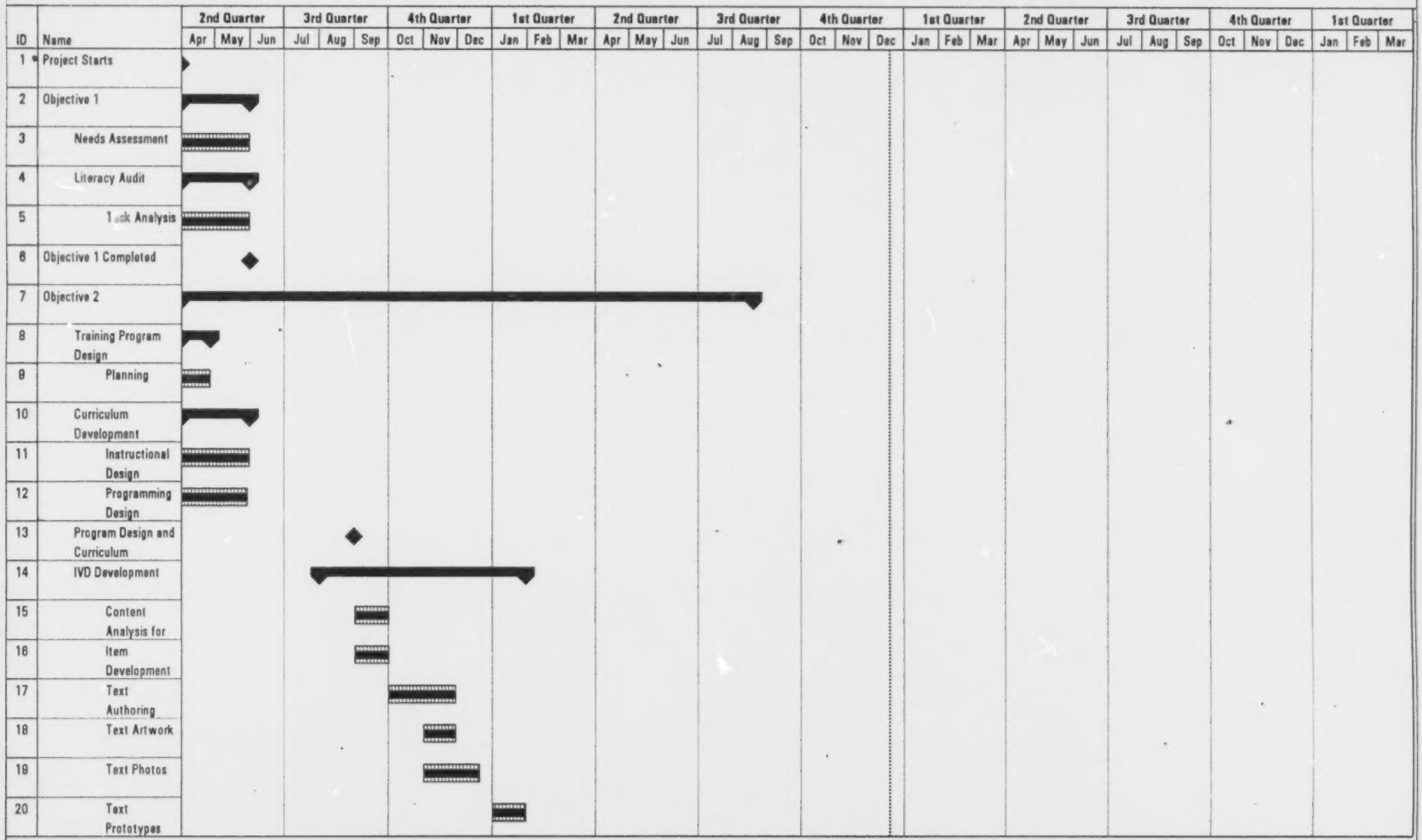
A list of the activities and objectives, with time lines, is included with the task chart. All of these have been completed. Each objective identified in the grant is addressed in the evaluation plan and was successfully completed within the timelines and budget identified in the original grant proposal application.

2. Refer to the schedule of accomplishments and their target dates contained in the approved application and give reasons for slippage in those cases where established objectives not met. Include any corrective measures taken to correct slippage.

All the accomplishments were completed within the timelines specified. A delay in the original grant was caused by late notification by the Department of Education to TSTC Waco of the original award. This delay resulted in a change from the original proposal timelines of approximately 3 months slippage. This change in the timeline resulted in an conflict of summer work schedules ,which are quite heavy, with the employees involved in the training. Due to the different timelines during the work year, the number of participants for the start-up training in the first quarter was significantly less than originally proposed. In addition to the revised schedule, budget and personnel cuts were enacted by ServiceMaster during the summer for cost cutting measures at the campus. These cuts reduced the number of employees and increased the workload of remaining employees. These budget cuts also affected the number of participants participating in the educational activities. The effect of the late start and the limited availability of people to be trained resulted in the delay or slippage in testing of the interactive videodisc materials with a prototype training group. This 3 month delay was made up by the developer and by TSTC during the second quarter. The project was on schedule with the training each quarter. The number of trained personell was less than anticipated because of the yearly timing and workplace seasonal scheduling. This delay in completion of the training was about one and 1/2

months of slippage. The training was completed by August 31, 1992 as specified by the grant but the field testing of the completed interactive video materials was not completed until the end of September, 1992. Since a no-cost extension on the project of 30 days was asked for in order for the project director to attend a 1992 National Workplace Literacy Project Directors' Close-Out Conference on the grant, all the activities in the project were completed within the adjusted time-lines.

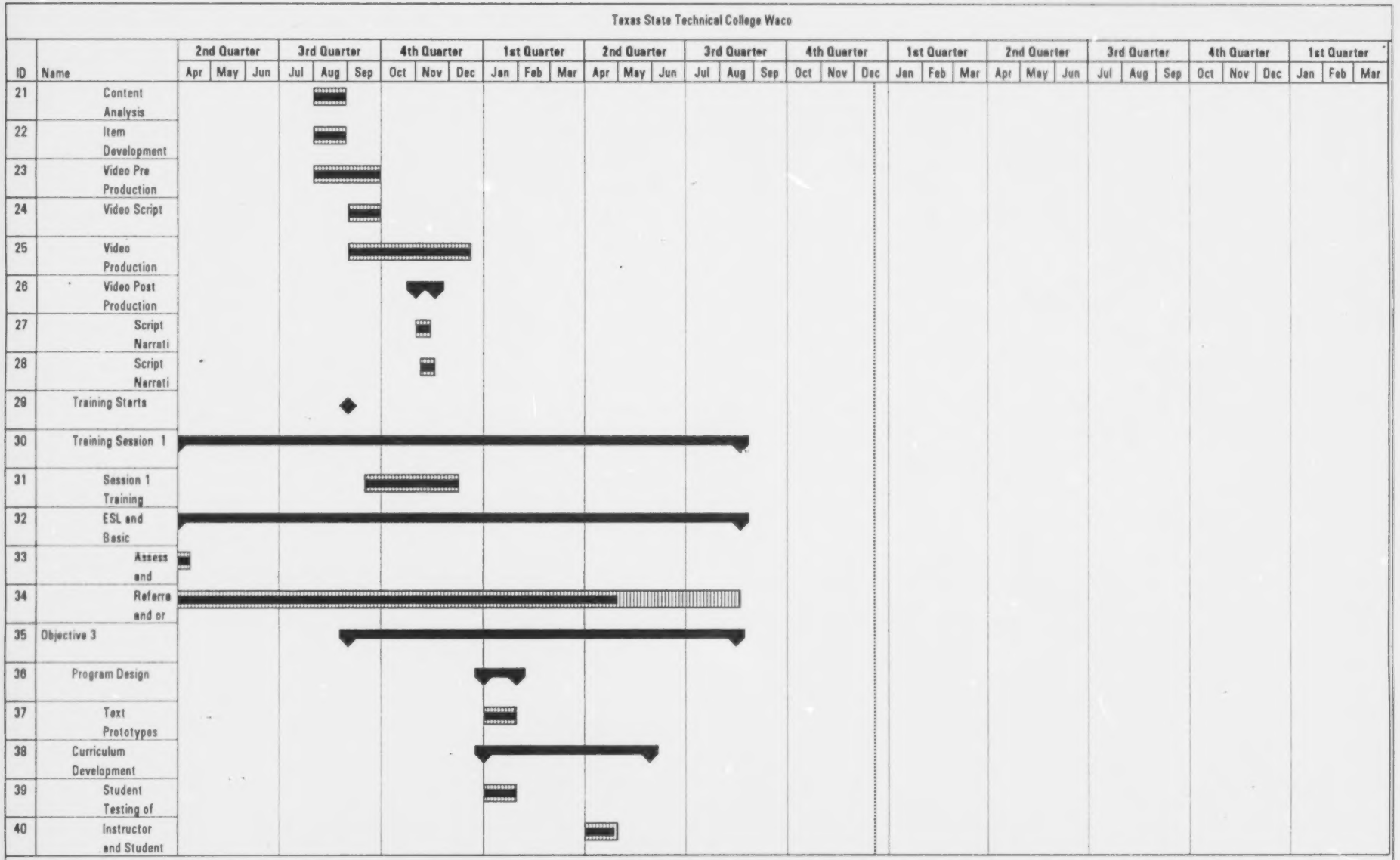
Texas State Technical College Waco



Project: IVD
Date: 12/18/92

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

Texas State Technical College Waco



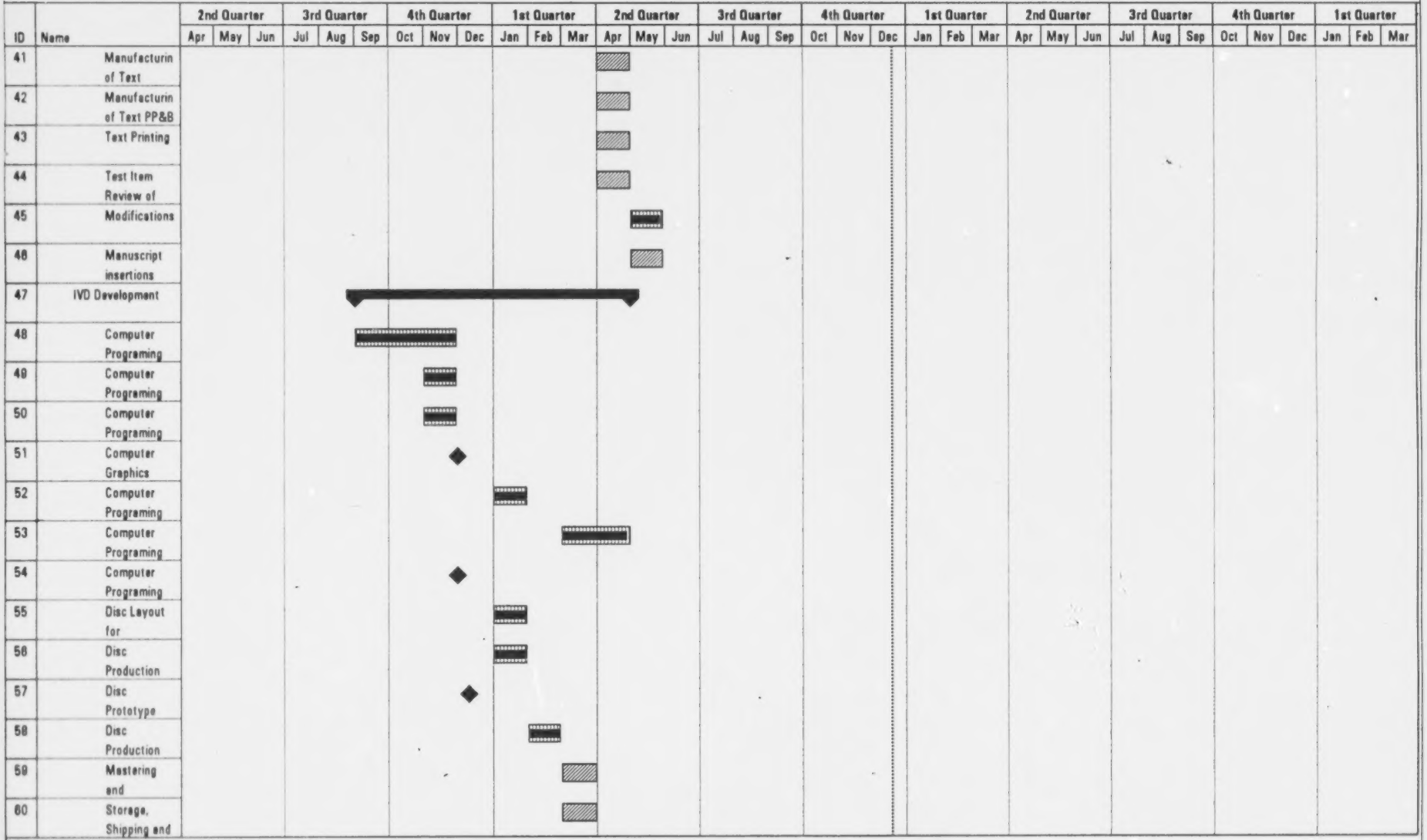
Project: IVD
Date: 12/18/92

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

11

11

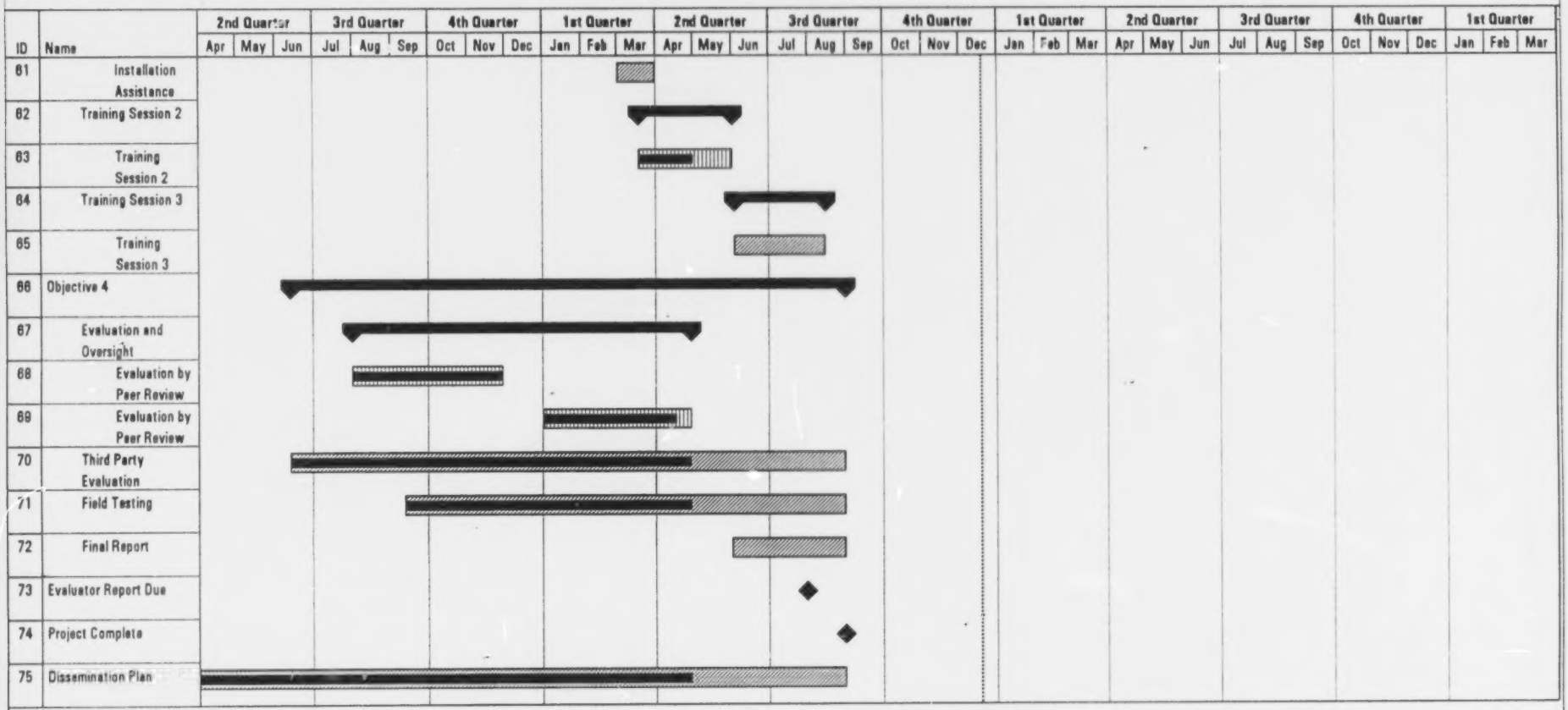
Texas State Technical College Waco



Project: IVD
Date: 12/18/92

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

Texas State Technical College Waco


2nd Quarter
3rd Quarter
4th Quarter
1st Quarter
2nd Quarter
3rd Quarter
4th Quarter
1st Quarter
2nd Quarter
3rd Quarter
4th Quarter
1st Quarter
Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
ID Name
61 Installation Assistance
62 Training Session 2
63 Training Session 2
64 Training Session 3
65 Training Session 3
66 Objective 4
67 Evaluation and Oversight
68 Evaluation by Peer Review
69 Evaluation by Peer Review
70 Third Party Evaluation
71 Field Testing
72 Final Report
73 Evaluator Report Due
74 Project Complete
75 Dissemination Plan

Project: IVD
Date: 12/18/92

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

3. For projects involving direct services to individuals identify the number and characteristics of project participants who completed planned project activities and of those who did not, and the outcomes achieved by participants who completed project activities.

Data Analysis

Determination of Effectiveness. Looking over the posttest scores (Figures 7, 8, and 9), one can see that program did bring many of the participants up in regards to mastery level in their assigned level. Further investigation into Levels 1 and 2 indicate these groups had the highest level of increase. Level 1 averaged a twenty-seven point increase in number operations and an eighteen point increase in problem solving. The Level 2 group averaged a twenty-eight point increase in number operations and a five point increase in problem solving. Therefore, using interactive video as a delivery medium with the appropriate contextual instructional design does assist in increasing math literacy levels.

Gender and Age Differences. To determine if any gender or age differences existed, two 3 x 2 ANCOVAs were used with age and gender as the independent variables while the pretest served as covariate. Looking at number operations (Table 1), there were no significant differences between the groups, $F(1, 30) = .291$, $p < .05$. Using the same ANCOVA structure with problem solving as the dependent variable (Table 2), there was once again no significant differences among the groups, $F(1, 30) = .678$, $p < .05$. No significant differences were found in either case. The videodisc performed the same for each participant regardless of age or gender.

Table 1

ANCOVA Summary Table for Hypotheses using Number Operations as the Dependent Variable.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
		Covariates			
PRETEST	235.674	1	235.674	2.468	.130
	235.674	1	235.674	2.468	.130
		Main Effects			
Main Effects	83.246	3	27.749	.291	.832
AGE	81.059	2	40.529	.424	.659
SEX	4.814	1	4.814	.050	.824
		Two-Way Interactions			
2-Way Interactions	238.884	2	119.442	1.251	.305
AGE X SEX	238.884	2	119.442	1.251	.305

Note. *$p < .05$.

Table 2

ANCOVA Summary Table for Hypotheses using Problem Solving as the Dependent Variable.

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig. of F
		Covariates			
Pretest	5165.807	1	5165.807	26.307	.000
	5165.807	1	5165.807	26.307	.000
		Main Effects			
Main Effects	399.297	3	133.099	.678	.575
AGE	322.931	2	161.465	.822	.452
SEX	39.158	1	39.158	.199	.659
		Two-Way Interactions			
2-Way Interactions	251.267	2	125.634	.640	.537
AGE x SEX	251.267	2	125.634	.640	.537

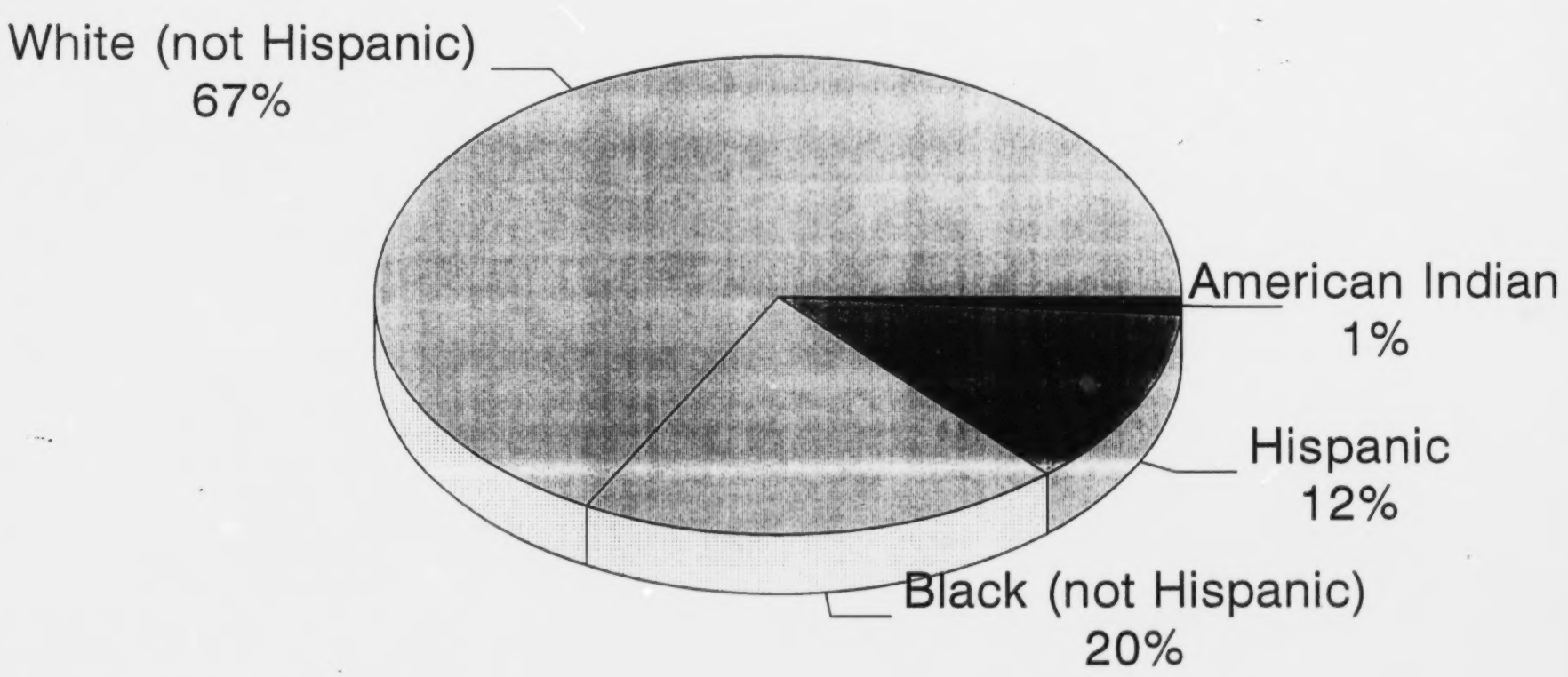
Note. *$p < .05$.

Figures 1-9 Waco Site

Further testing. TSTC Waco and Ivy Tech cooperated on a pilot project to determine the effectiveness of the videodisc using just the videodisc pre and post tests as the evaluation instrument. This showed the reliability of the test to be .66 using the Spearman-Brown prophecy formula, and the Kuder-Richardson 20 method determined Coefficient alpha to be .71. As reflected in the posttest scores(M = 82.5, SD = 4.6, n = 27) the average gain was 4.4 points. Those students who scored below 70 on the pretest scored above the 80 level on the posttest score. This indicated that the videodisc met its goal of achieving 80% mastery upon completion. Once again, student evaluation of the videodisc showed it to be helpful, energetic, and useful instruction for the workplace.

Fig. 1 Facilities Maintenance Demographic Survey

Total Facilities Maintenance Population TSTC Waco

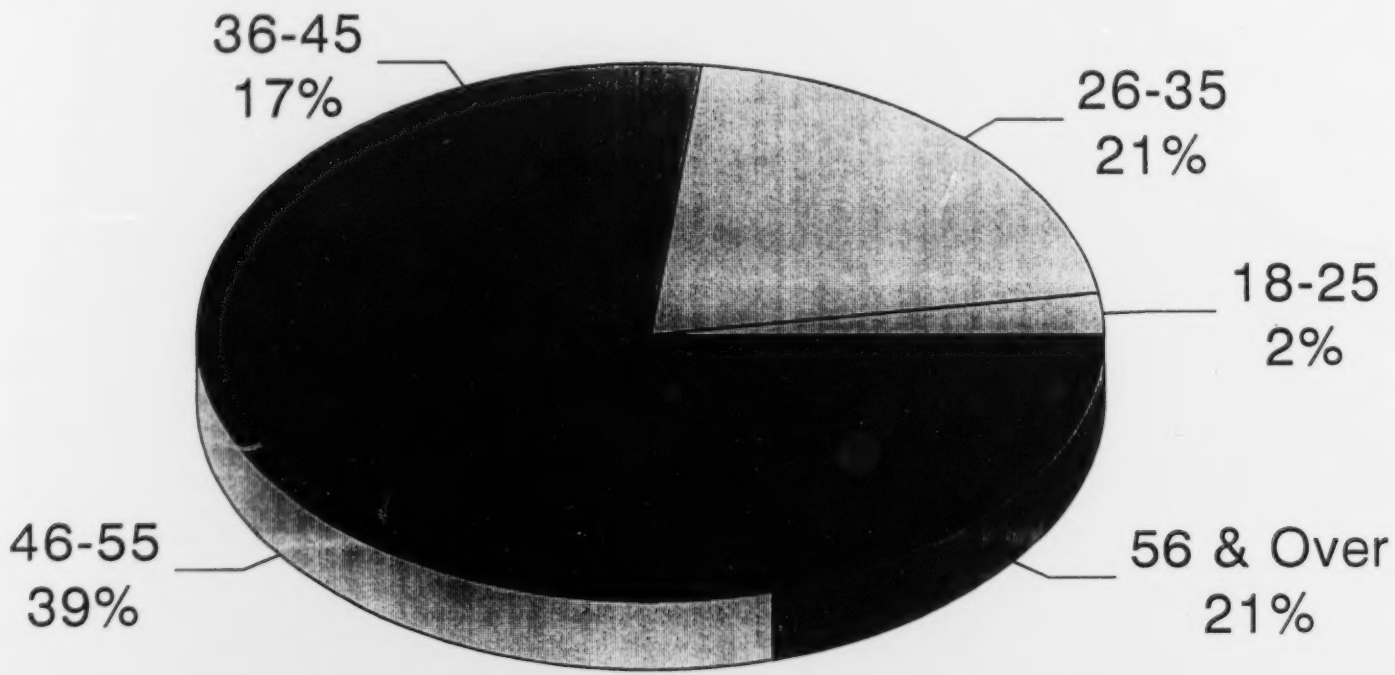


Race/Ethnic Status

N = 82

Fig. 2 Facilities Maintenance Demographic Survey

Total Facilities Maintenance Population TSTC Waco

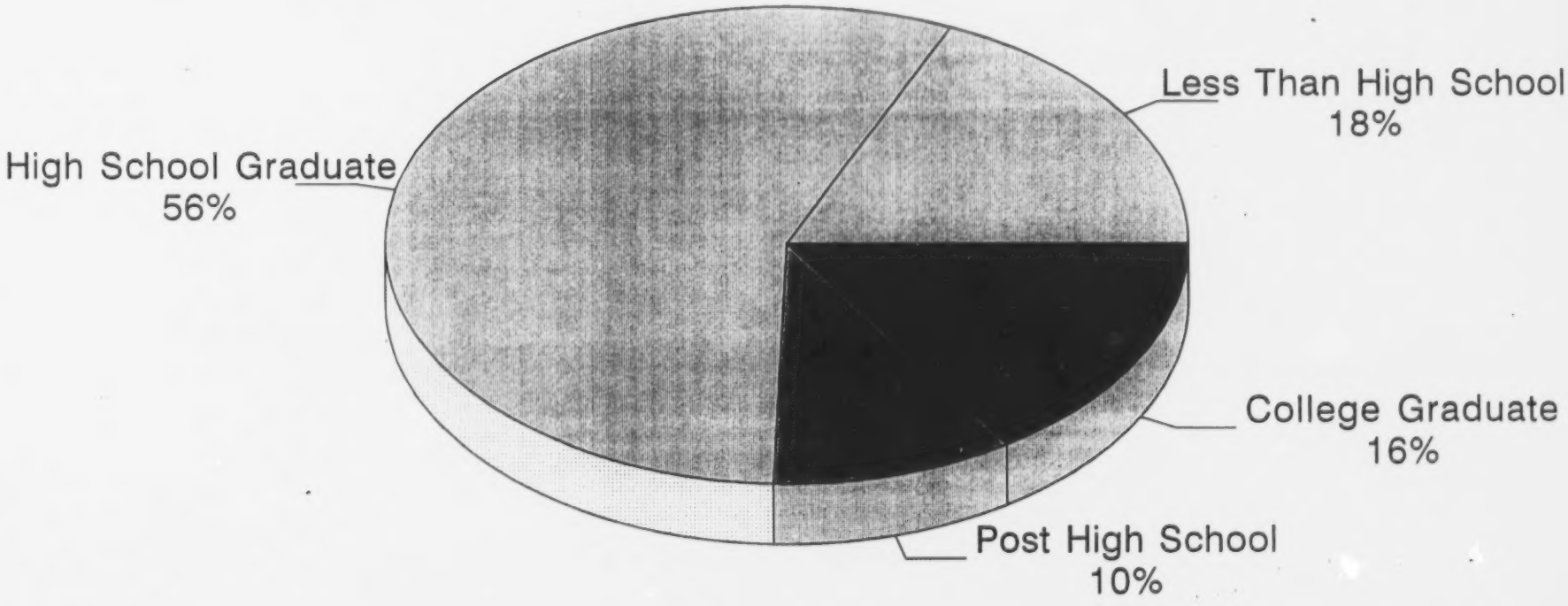


Age

N = 82

Fig. 3 Facilities Maintenance Demographic Survey

Total Facilities Maintenance Population TSTC Waco

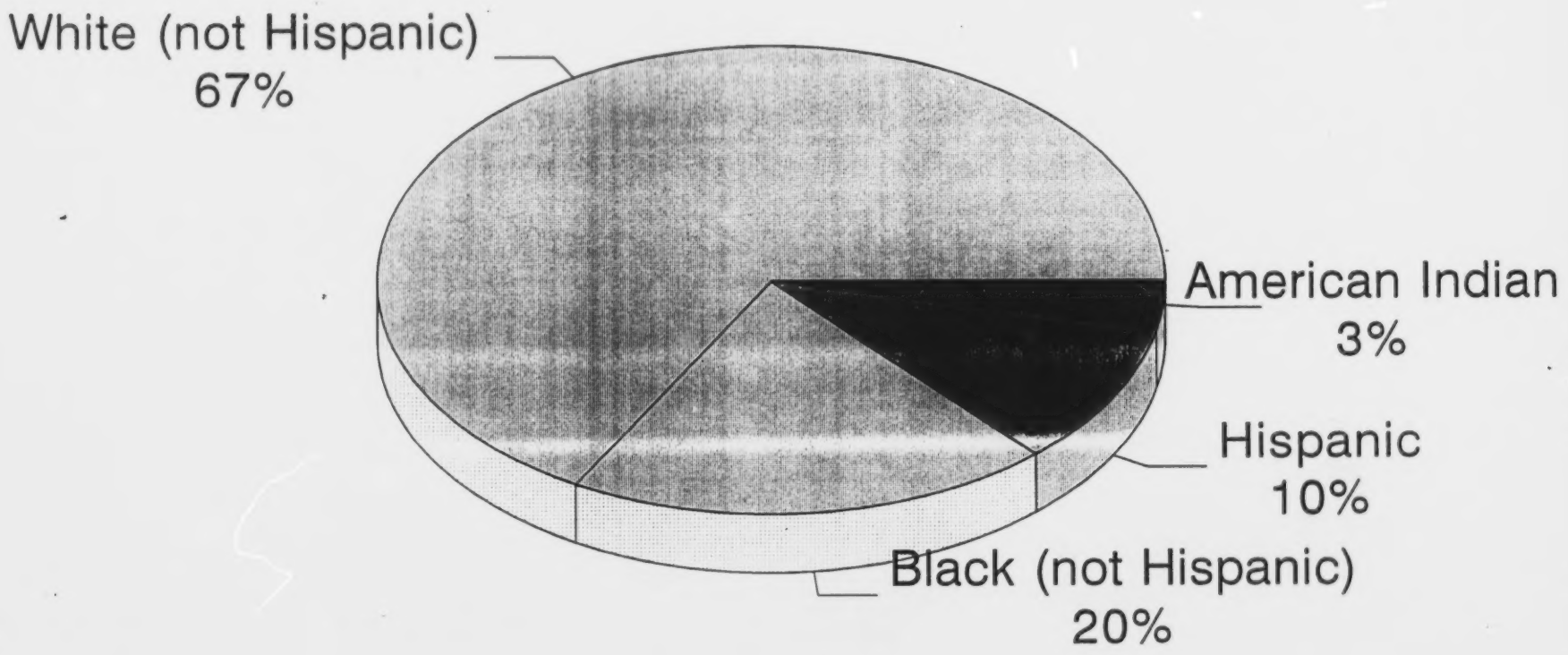


Completed Educational Status

N = 82

Fig. 4 West Student Demographic Survey

Facilities Maintenance Student Population TSTC Waco

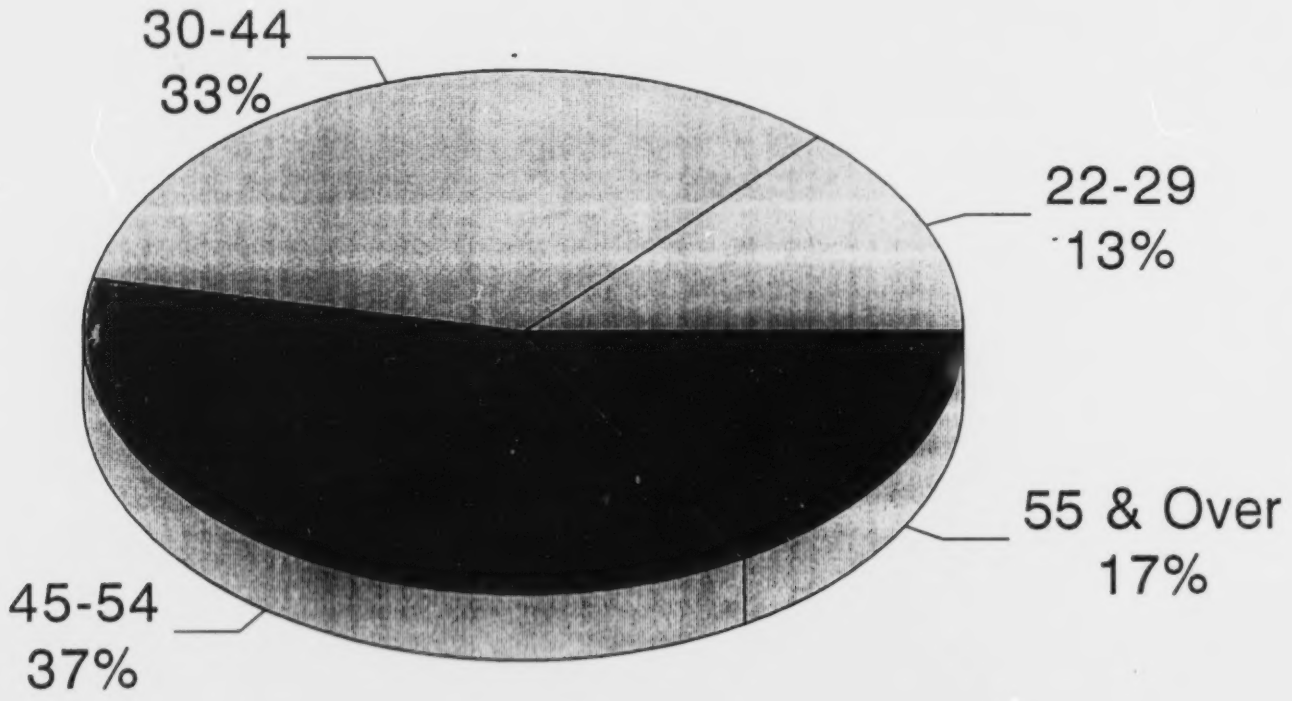


Race/Ethnic Status

N = 30

Fig. 5 West Student Demographic Survey

Facilities Maintenance Student Population TSTC Waco

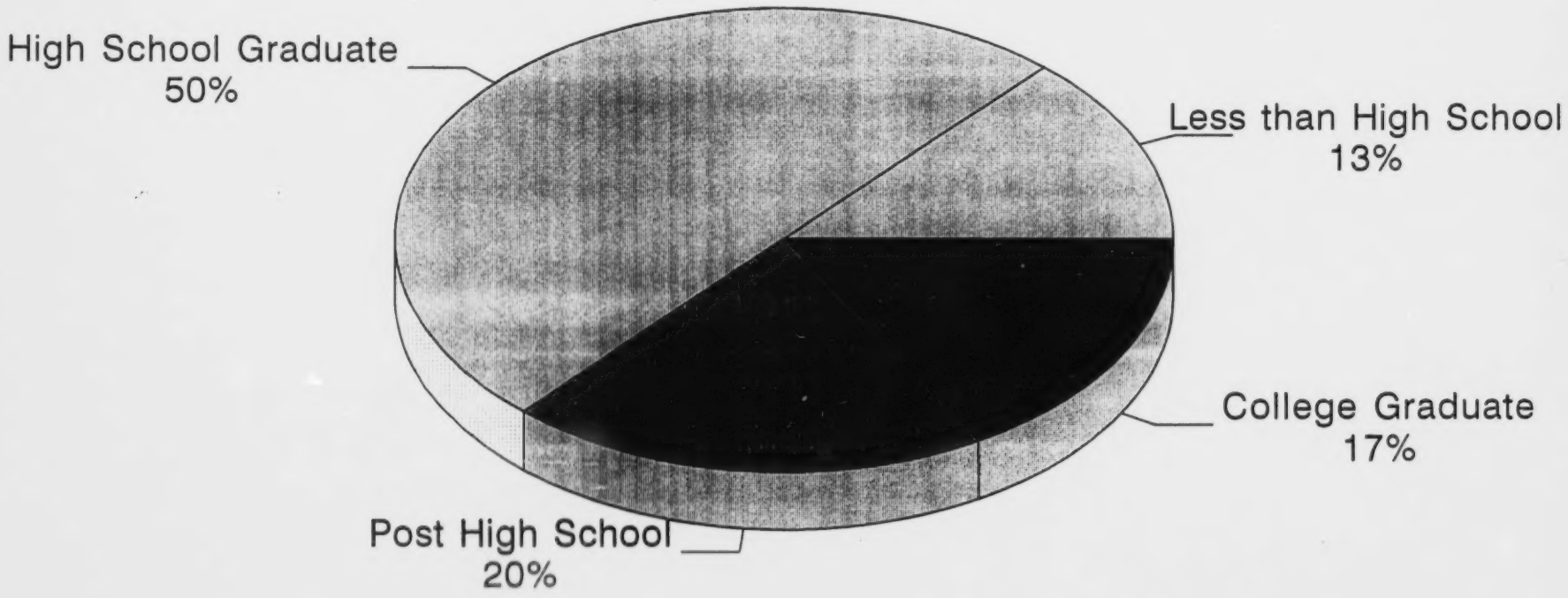


Age

N = 30

Fig. 6 West Student Demographic Survey

Facilities Maintenance Student Population TSTC Waco

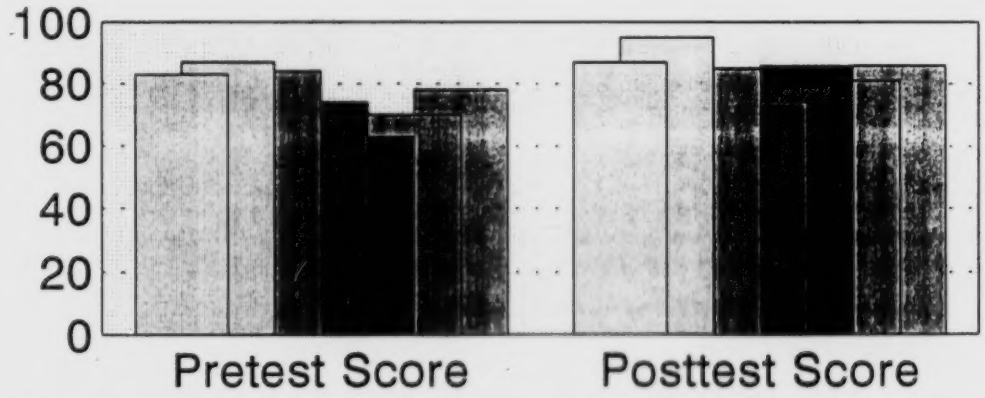


Completed Educational Status

N = 30

Fig. 7 Pretest/Posttest Comparison

Total Facilities Maintenance Student Population TSTC Waco

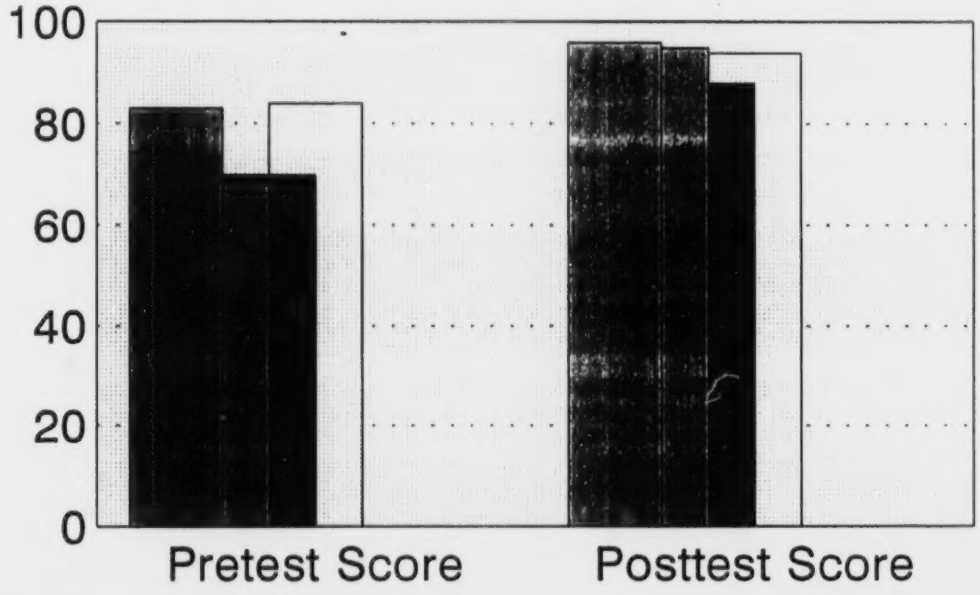


	Pretest Score	Posttest Score
Vocabulary	83	87
Reading Comprehension	87	95
Spelling	84	85
Language	74	74
Number Operations	63	86
Problem Solving	70	81
Total	78	86

N = 30

Fig. 8 Pretest/Posttest Comparison

Level 1 Facilities Maintenance Student Population TSTC Waco

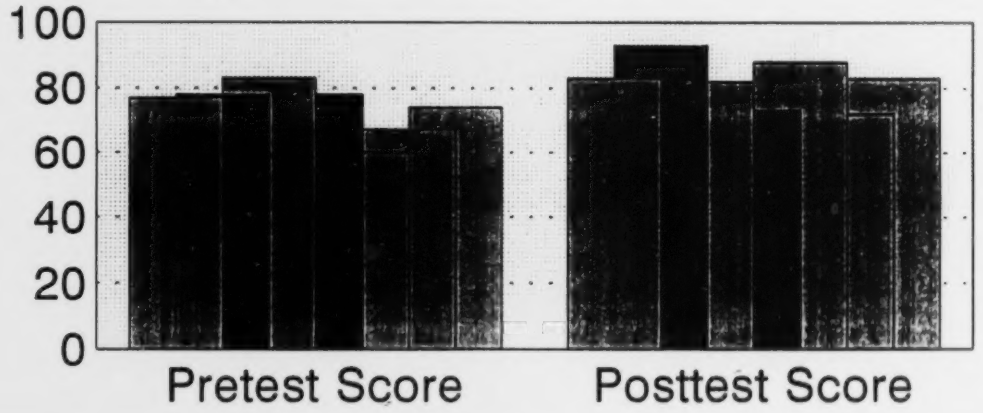


	Pretest Score	Posttest Score
Reading Comprehension	83	96
Number Operations	68	95
Problem Solving	70	88
Total	84	94

N = 4

Fig. 9 Pretest/Posttest Comparison

Level Two Facilities Maintenance Student Population TSTC Waco

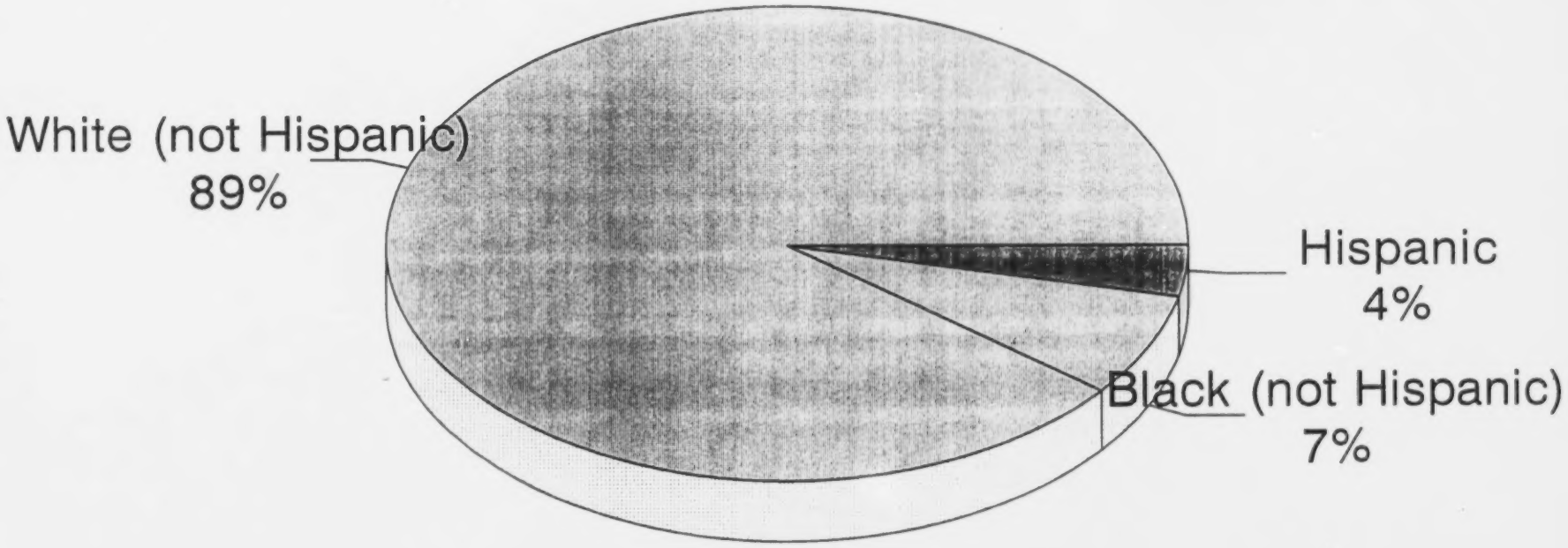


	Pretest Score	Posttest Score
Vocabulary	77	83
Reading Comprehension	78	93
Spelling	83	82
Language	78	73
Number Operations	60	88
Problem Solving	67	72
Total	74	83

N = 12

Fig. 10 Facilities Maintenance Demographic Survey

Facilities Maintenance Population Pilot Site IVEY TECH

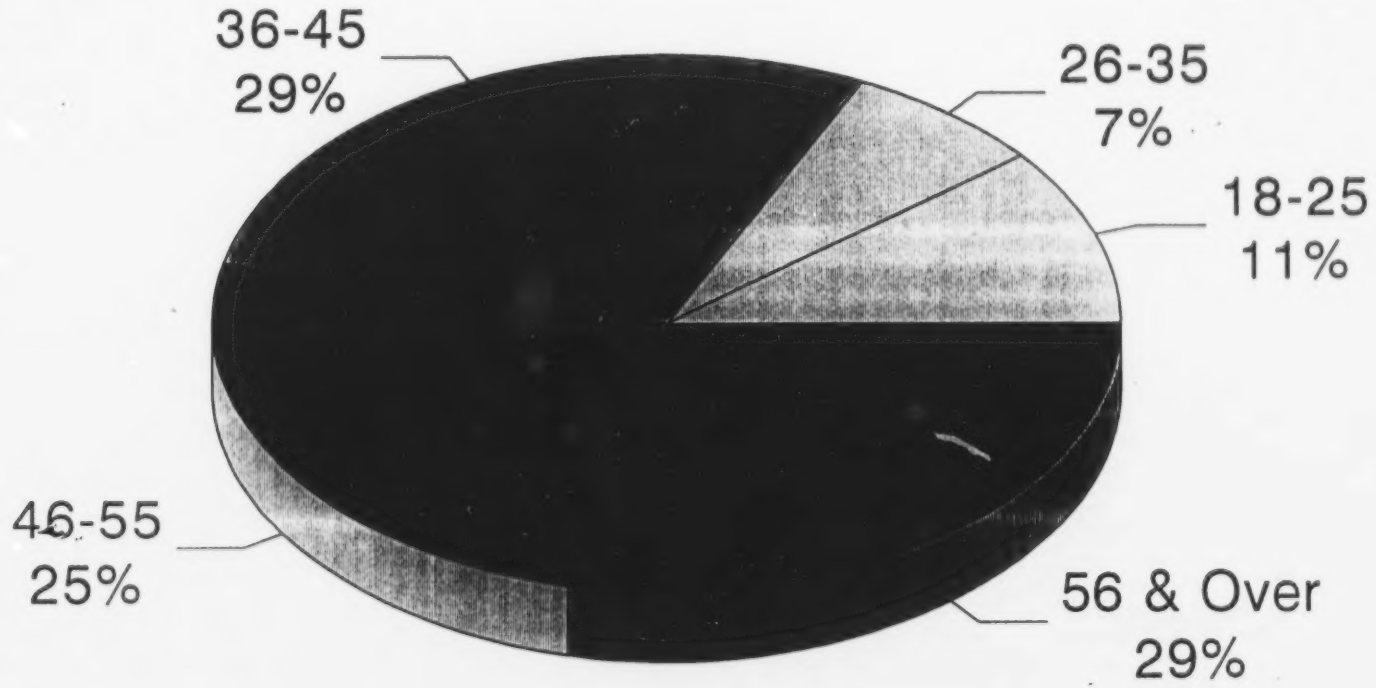


Race/Ethnic Status

N = 28

Fig. 11 Facilities Maintenance Demographic Survey

Facilities Maintenance Population Pilot Site IVEY TECH

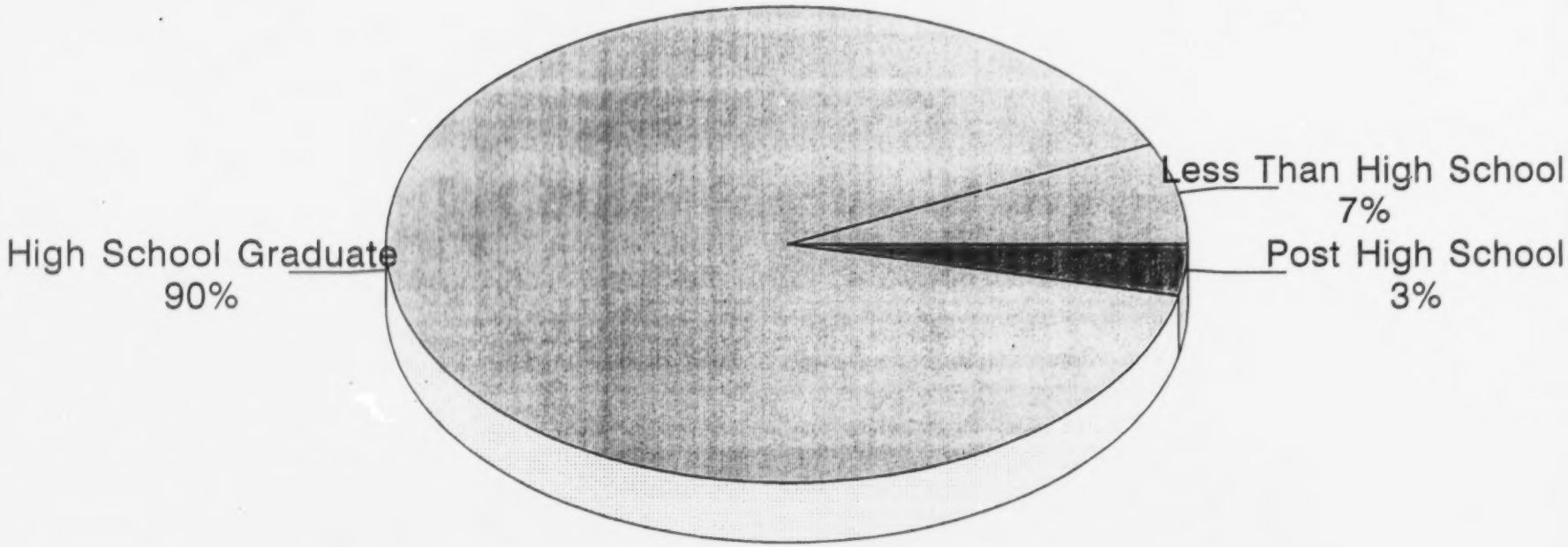


Age

N = 28

Fig. 12 Facilities Maintenance Demographic Survey

Facilities Maintenance Population Pilot Site IVEY TECH

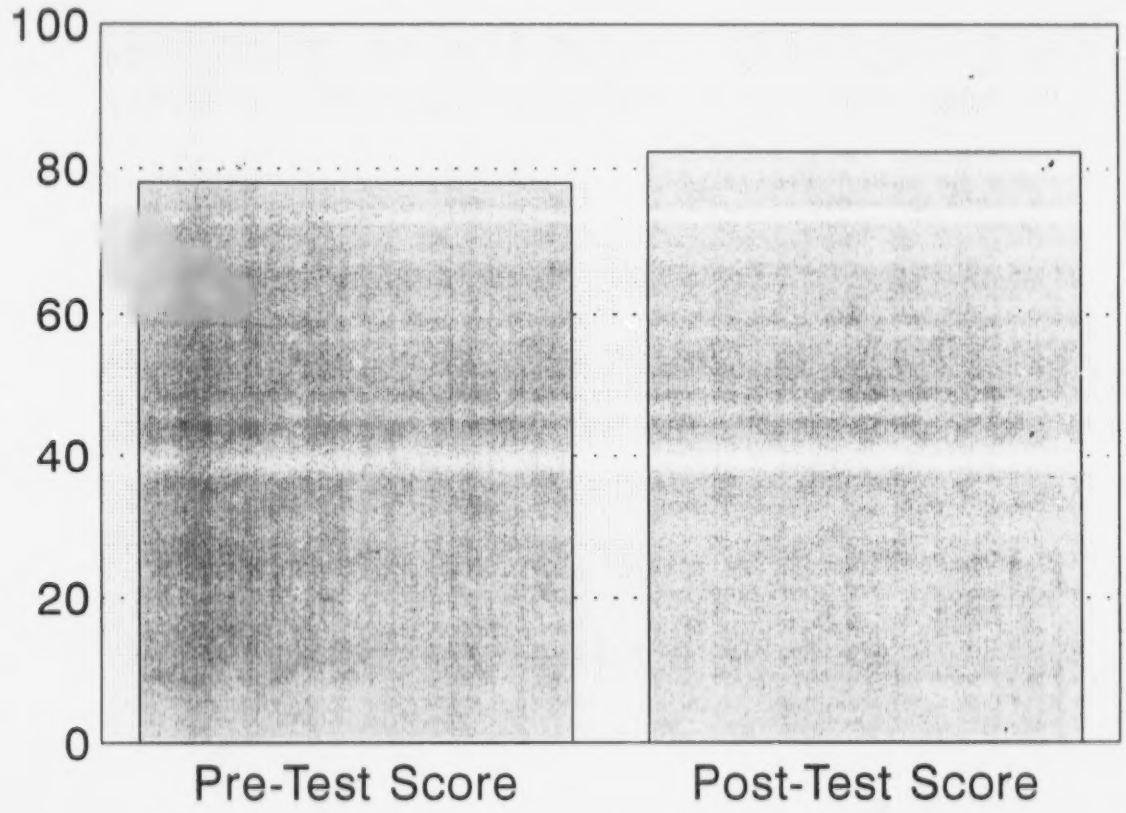


Completed Educational Status

N = 28

Fig. 13 Pre-test/Post-test Comparison

Facilities Maintenance Student Population IVEY TECH



Average Test Score	78	82.4

N = 27

Discussion

Conclusions. The results of the study showed that a contextual videodisc-based instructional delivery system yields positive results in adult literacy programs. Both Levels 1 and 2 improved their scores in number operations and problem solving. While scores increased, the training did not have any bias towards age and gender in regards to number operations ($F(1, 30) = .291$, $p < .05$) and problem solving scores ($F(1, 30) = .678$, $p < .05$).

Implications and Recommendations. This study has direct implications for workplace literacy programs. Using the technology to deliver the literacy training allows workers to complete training regardless of the presence of an instructor. This means that training can take place twenty-four hours a day, and the trainer can spend more time developing curriculum as well as materials. Using the technology also enhances the opportunities for contextual-based learning versus the traditional system. This allows learners to become more involved with the learning as it reflects their everyday occupation rather with some distant environment with which they could not relate. This ownership of learning is possibly seen in the increase in posttest scores by Levels 1 and 2.

In regards to recommendations, further study needs to be done in the use of technology in a variety of workplace literacy programs. Literacy issues may be a result of changing learning styles rather than disabled or slow learners. Testing technology in a variety of settings will help validate this process. One must remember, however, that it is the instructional design, not the hardware/software that dictates the success of the program. Secondly, continual testing of literacy programs

using technology would enable more people to experience the changes in the workplace. This could drive increased academic as well as technical literacy as the United States tries to upgrade the skill of its workforce. In a global market with international implications for all business and industry, the United States must encourage efforts to increase literacy skills in order to achieve a dominant role in the world economy.

4. Report on any dissemination activities.

The following presentations, tours and demonstrations were conducted during the project.

January 22, 1992	Project Advisory Committee Meeting
January 24,1992	Waco, Connally and La Vega Independent Schools
February 3, 1992	Weyerhauser, Incorporated Tour
February 4, 1992	Waco Independent School District Administration
February 5, 1992	ServiceMaster Corporate Training Staff
February 12, 1992	Region Superintendents of Schools
February 18, 1992	Providence Hospital Training Staff
February 20, 1992	Bowie High School Administration
March 2, 1992	Baylor University Educators
March 4, 1992	Waco Independent School District Instructors
March 5, 1992	Alliance Airframe, Dallas
March 8, 9 and 11, 1992	National Tech-Prep Consortium Tours and Presentation
March 12, 1992	City of Austin
March 27, 1992	Texas State Technical College System Board of Regents
April 10, 1992	Tarrelton State University Instructors
April 13, 1992	Texas Educational Region Service Center Staff, Region 13
April 14, 1992	Marlin Independent School District Administration
April 22, 1992	Shillstone Inc., Dallas
April 24, 1992	Texas Department of Transportation, Austin
April 29, 1992	Huck Engineering, Inc.

May 1, 1992	Presentation at Weyerhauser
May 1, 1992	Project Advisory Committee Meeting
May 11, 1992	Sedle Group
May 24-27, 1992	National Institute Staff and Organizational Development Conference, Austin
June 10- 17 and June 25- July1, 1992	Center for Occupational Research and Development Train-the-Trainer Workshops
June 23-24, 1992	Department of Transportation, Labor and Education Presentation, Washington, D.C.
July 6, 1992	ServiceMaster Corporate Training Staff
July 15, 1992	Federal Department of Transportation, Fort Worth
August 4, 1992	Texas State Senate Subcommittee Hearing, Forth Worth
August 11- 14, 1992	National Bridges Conference
August 31, 1992	ALICO Life Insurance Company
August 27, 1992	Project Advisory Committee
September 9- 11, 1992	Workplace Literacy Project Closeout Conference, Washington, D.C.
September 17, 1992	Texas State Council on Vocational Education Tour
September 23, 1992	North West Waco Lions Club
October 2, 1992	Texas Association of School Boards
October 7, 1992	Marlin Rotary Club

October 21- 24, 1992	Presentations at the League for Innovation in the Community Colleges
December 4, 1992	American Vocational Association presentation

5. Report on any evaluation activities.

Background

Evaluation of education efforts is a common, necessary requirement of all projects financed by State and Federal Agencies. Program or project evaluations have been used as a mechanism to identify which innovations succeeded and which did not. However, evaluation has not been an area of concentration by many individual educators. The nebulous nature of too many products of human learning and education activities has contributed to this lack of concentration.

The need for developing and using an appropriate evaluation for the program or project to be evaluated has been indirectly emphasized by Alan Ginsburg (1992), who stated:

> *One criticism was that evaluators showed a preoccupation with measuring overall program impacts, particularly test score changes, while achievement outcomes are important, they don't tell the whole story. "Black box" evaluations that ignore program processes are particularly frustrating in that, by themselves, they fail to indicate how to improve poorly performing programs.*

With these evaluation concerns in mind, staff and consultants of the Applied Workplace Literacy for the Facilities Maintenance Industry developed and used a project evaluation plan that combined three stages. The first state of the plan was to obtain formative information related to the installation of the project. The second stage dealt with process and was used to ensure that the activities of the project management plan would achieve the state project objectives. The third stage of the

evaluation plan, in a summative mode, was designed to provide information on the project products and achievements.

The goal of the demonstration project "Applied Workplace Literacy for the Facilities Maintenance Industry" was to develop a pilot workplace training program that could be a model for basic skills instruction for the majority of Service Master's thousands of support service employees worldwide.

Each project objective was analyzed for the purpose of identifying tasks or activities that were to be performed in the achievement of each of the four project objectives. Each of the tasks/activities identified by an analysis of each objective as categorized by each of the three stages of the evaluation. For each task/activity selected for review (evaluation), persons to be involved in the review of each task/activity were identified. Questions or criteria were developed for evaluating each task/activity performed and/or product produced. The responses of the reviewers of each task/activity and/or product are reported by evaluation stage in the following narrative.

Presentation of Evaluation Data

The evaluation of the project was conducted using a series of survey forms for the task/activities to be evaluated. Following, organized into three evaluation stages, are the responses to the questions on the survey forms.

Installation Stage

Task/Activity: Project Management Plan

The persons involved in the review of this task/activity included three instructors, one partner, three project administrative staff members, one other project staff member, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were individual tasks listed and distributed by project objective?	Yes 100 No __
2. Were milestones and timelines established by tasks and objectives?	Yes 100 No __
3. Did the management plan provide for modifications and revisions as needed?	Yes 100 No __
4. Was the management plan shared with all parties involved in the project?	Yes 100 No __

Task/Activity: Evaluation Plan

The persons involved in the review of this task/activity included two instructors, one partner, one other project staff member, two project administrative staff members, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were you as a member of the project staff, participating partner, or Third party evaluator involved in the development of the evaluation plan?	Yes 100 No __
2. Do you feel that the evaluation plan provided for the collection of information that would include both qualitative and quantitative measure?	Yes 100 No __

3.	Did the evaluation plan include both formative and summative evaluation?	Yes 100 No __
4.	Is the project being evaluated in accordance with the evaluation plan?	Yes 100 No __

Task/Activity: Dissemination Plan

The persons involved in the review of this task/activity included three instructors, and four project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Was the dissemination plan installed as proposed?	Yes 100 No __
2.	Were each of the avenues (activities) for project dissemination described in the plan used?	Yes 100 No __
3.	Are there indicators that the dissemination plan was effective?	Yes 100 No __

Task/Activity: Staff Development

The persons involved in the review of this task/activity included four instructors and four project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Was a staff development plan in place?	Yes 100 No __
2.	If a staff development plan was not in place, was one developed?	Yes 100 No __
3.	Was the existing plan revised or a new plan developed to provide for staff development needs unique to the project staff?	Yes 100 No __

4. Has the staff development plan been implemented for project staff? Yes 100 No __

5. Does the staff development plan appear to be meeting the professional development needs of the project staff? Yes 100 No __

Task/Activity: Needs Assessment

The persons involved in the review of this task/activity included three instructors, one partner, two project administrative staff members, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Do you feel that appropriate tools (test, interview, counseling) were used to determine the training needs of the students?	Yes 100 No __
2. Were the tools used appropriately for determining the training needs of students?	Yes 100 No __
3. Do you feel that appropriate tools were used to determine the level of instruction that should be provided for each student?	Yes 100 No __
4. Do you feel that the results of the training needs assessment were used in the planning and the delivery of instruction?	Yes 100 No __

Task/Activity: Test Selection

The persons involved in the review of this task/activity included two instructors, one partner, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were tests selected to meet the proposed purpose of testing?	Yes 100 No __

Process Stage

Task/Activity: Literacy Audit

The persons involved in the review of this task/activity included five instructors, four project advisory committee members, three project administrative staff members, one partner, and twenty-three students. Following are the responses of the reviewers for each questions used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Was the literacy audit conducted as proposed?	Yes 100 No __
2.	Did the literacy audit produce the products (results) proposed for the project?	Yes 100 No __
3.	Were the findings of the literacy audit sufficient to develop a competency-based curriculum(s)?	Yes 100 No __
4.	Did the literacy audit identify both competencies and tasks of required basic skills?	Yes 100 No __

Task/Activity: Test Selection

The persons involved in the review of this task/activity included two instructors, one partner, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Were the tests selected capable of determining the anticipated increase in worker's reading/ writing/mathematics skill levels?	Yes 100 No __
2.	Were the test administered as proposed?	Yes 100 No __
3.	Were the results of the tests used as proposed?	Yes 100 No __

4. Were standardized tests used? Yes 100 No __

Task/Activity: Task Analysis

The persons involved in the review of this task/activity included two instructors, two project administrative staff members, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Was an accepted occupational analysis procedure used to identify the tasks of each competency identified in the literacy audit?	Yes 100 No __
2.	Was a proven task analysis procedure used?	Yes 100 No __
3.	Was an analysis made of all identified tasks?	Yes 100 No __
4.	Were instructional topics (knowledge and performance) identified by each task analysis?	Yes 100 No __
5.	Were the results of the task analysis compared with existing curricula and instructional content at TSTC Waco?	Yes 100 No __

Task/Activity: Program Design and Planning

The persons involved in the review of this task/activity included two instructors, four project advisory committee members, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of the task/activity.

Questions		Percent of Reviewers Responding
1.	Was the program designed and planned as described in the proposal?	Yes 100 No __
2.	Were the appropriate personnel used in designing the program as proposed?	Yes 100 No __

3.	Were the proposed factors such as logistics and identified needs used in the design of the program?	Yes 100 No __

Task/Activity: Curriculum Development

The persons involved in the review of this task/activity included three instructors, four project advisory committee members, two project administrative staff members, one contractor (SETS), and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Were the curricula developed using the results of the literacy audit?	Yes 100 No __
2.	Was the instructional content of the curricula developed based on the results of the analysis of each identified task?	Yes 100 No __
3.	Were objectives of existing instructional content modified to meet the instructional content required by the literacy audit?	Yes 100 No __
4.	Are the curricula competency-based?	Yes 100 No __
5.	Were individual differences in learning provided for in the instructional materials?	Yes 100 No __
6.	Were appropriate methods for the delivery of instruction provided for each lesson?	Yes 100 No __
7.	Was sufficient time provided to allow for skills improvement in the training schedule?	Yes 100 No __

Task/Activity: Instructional Materials (Purchased)

The persons involved in the review of this task/activity included three instructors, one partner, one contractor, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Were appropriate and sufficient instructional materials obtained that would implement the curriculum?	Yes 100 No __
2.	Were modifications of the materials made when necessary?	Yes 100 No __
3.	Were the materials field tested with students?	Yes 100 No __

Task/Activity: Hardware and Software Selection

The persons involved in the review of this task/activity included two instructors, one other project staff member, one contractor, and four project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Were the evaluation procedures and standards developed for the selection of hardware and software based on the proposed methods of delivery of instruction described in the program design?	Yes 100 No __
2.	Did the selected hardware and software meet the requirements of the delivery methods described in the program design?	Yes 100 No __
3.	Did the software and hardware provide for the individual learning styles of trainees?	Yes 100 No __

Task/Activity: Student Training

The persons involved in the review of this task/activity included three instructors and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding

1.	Were individual training plans developed for each student?	Yes 92 No 8
2.	Did the individual training plans reflect the results of the needs assessment for the respective student?	Yes 100 No __
3.	Did the training proceed as scheduled?	Yes 92 No 8
4.	Did the majority of the students achieve the training (instructional) objectives?	Yes 100 No __
5.	Was the training evaluated by staff and students?	Yes 100 No __
6.	Was the time established for training sufficient?	Yes 100 No __
7.	Were sufficient resources made available for training?	Yes 100 No __
8.	Was student release time for training sufficient?	Yes 76 No 14

Student Training was also evaluated by some of the students. Following are the responses of students who were asked to evaluate the training.

Evaluation Question		Number of students responding, by rating
1.	The amount of time allowed for this course was:	Too little 6 About right 94 Too much 0
2.	The amount of work assigned was:	Too little 6 About right 94 Too much 0
3.	The coursework applies to my job:	Not at all 19 Somewhat 62 Frequently 19
4.	I wish to participate in another class:	Never 0 Later 47 Immediately 53
5.	The time of day for this class was:	Too early 0 About right 94 Too late 6

6. I would like more training in:

Reading	25
Writing	31
Math/Physics	44
Computer	94

Task/Activity: Selection of a Qualified Publisher/Contractor

The persons involved in the review of this task/activity included three instructors, one contractor, and four project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Were capability and bid evaluation criteria established?	Yes 100 No __
2.	Was a bid proposal format developed and used?	Yes 100 No __
3.	Were state guidelines and bid procedures followed?	Yes 100 No __
4.	Was a bid proposal evaluation form developed and used?	Yes 100 No __
5.	Was the response to the bid proposals done in a timely manner?	Yes 100 No __

Product Stage

Task/Activity: Development of Interactive Video Disc (IVD)

The persons involved in the review of this task/activity included three instructors, three project advisory committee members, three project administrative staff members, and one contractor. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Was the IVD developed as proposed?	Yes 90 No 10
2.	Did the IVD meet contract specifications?	Yes 80 No 20
3.	Does the IVD provide for the development of all skills identified by the literacy audit and the task analysis?	Yes 80 No 10

Task/Activity: Interactive Videodisc Training

The persons involved in the review of this task/activity included three instructors and one project administrative staff member. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Did the IVD training proceed as scheduled?	Yes 75 No 25
2.	Did the IVD training meet the instructional objectives as determined by the literacy audit?	Yes 100 No __
3.	Was the IVD training evaluated by students and staff?	Yes 100 No __
4.	Was the time established for IVD training sufficient?	Yes 100 No __
5.	Were sufficient resources needed to supplement the IVD training made available?	Yes 100 No __

Task/Activity: Project Management Plan

The persons involved in the review of this task/activity included three instructors, one partner, four project administrative staff members, one contractor, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Were the milestones and timelines met as established?	Yes 89 No 11
2.	Were the revisions made as the result of unforeseen barriers	Yes 100 No __

Task/Activity: Program Design and Planning

The persons involved in the review of this task/activity included two instructors, four project advisory committee members, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Were the proposed resources used in the design?	Yes 100 No __
2.	Were additional resources identified?	Yes 100 No __
3.	Were the total resources sufficient?	Yes 100 No __
4.	Were provision made in the design to assure the curricula would be competency-based?	Yes 100 No __
5.	Were the proposed methods of delivery used in the design?	Yes 100 No __

Task/Activity: Student Achievement

The persons involved in the review of this task/activity consisted of one partner. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Rate the increase in the productivity of all employees as a group after training by checking one of the statements below which best indicates your rating of increased productivity:	
__ 1 . No increase in productivity	___
__ 2. Some increase in productivity	___
__ 3. Moderate increase in productivity	100
__ 4 . Above average increase in productivity	___
__ 5. High increase in productivity	___
2. Was there improvement in communications and mathematical skills of employees?	Yes 100 No __
3. Was there improvement in the workplace attitude of employees?	Yes 100 No __
4. Was there a decrease in absenteeism of employees?	Yes 100 No __
5. Would you recommend that other employees needing literacy improvement be provided this training?	Yes 100 No __

Task/Activity: Students with IVD Training

The persons involved in the review of this task/activity included five partners. Following are the responses of the reviewers for each question for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Rate the increase in the productivity of all employees as a group after training by checking one of the statements below which best indicates your rating of increased productivity:	
__ 1 . No increase in productivity	40
__ 2. Some increase in productivity	__
__ 3. Moderate increase in productivity	40
__ 4. Above average increase in productivity	20
__ 5. High increase in productivity	__
2. Was there improvement in communications and mathematical skills of employees?	Yes 100 No __
3. Was there improvement in the workplace attitude of employees?	Yes 100 No __
4. Was there a decrease in absenteeism of employees?	Yes 20 No 80
5. Would you recommend that other employees needing literacy improvement be provided this training?	Yes 100 No __
6. Do you feel that students (employees) participating in IVD training made greater progress in training using traditional methods of teaching?	Yes 100 No __

Task/Activity: Evaluation Plan IVD Field Test

The persons involved in the review of this task/activity included instructors, project advisory committee members, project administrative staff and the independent

evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding	
1.	Was the field test conducted as proposed?	Yes 33	No 67
2.	Were the evaluations of the IVD by employees (students) positive?	Yes 100	No ___
3.	Were the positive evaluations of IVD by students at the field test sites documented?	Yes 100	No ___
4.	Were the assessments of IVD made by the adult education specialists at the field test sites positive?	Yes 100	No ___
5.	Did ServiceMaster supervisors at each site feel that the IVD would be applicable for their staff?	Yes 100	No ___
6.	Did the IVD meet the specific objectives of the instructional program?	Yes 100	No ___
7.	Did the training meet the intent of the grant?	Yes 100	No ___
8.	Did the training meet the training needs identified by the literacy audit?	Yes 100	No ___

Additional Comments: The field test was delayed because of the delay in the pilot test at TSTC Waco. The field test was conducted with 29 employees at one site instead of 10 sites with 10 employees. This difference in number of sites and employees resulted because ServiceMaster failed to identify additional sites for field testing. SETS was responsible for the field site testing activities.

Summary of Evaluation Findings

The summary of the evaluation findings are reported by task/activity in relation to the project objective for which the task/activity was performed.

Objective 1: "Conduct a thorough needs assessment/literacy audit on which to base the design of the program."

Task/Activity: Selection of Literacy Tests

Five persons were selected to respond to the questions used in the evaluation of this task. All five of the respondents agreed that this task was performed as proposed.

Task/Activity: Literacy Audit

Thirty-six persons which included twenty-three students responded to the four evaluation questions for this task/activity. All thirty-six respondents agreed that the literacy audit was conducted as proposed and achieved the purposes for which the literacy audit was performed.

Objective 2: "Conduct Phase I Training"

Task/Activity: Task Analysis

Two instructors, two project administrative staff, and the independent evaluator reviewed both the process and products of the task analysis. All reviewers agreed that the task analysis was conducted as proposed and the expected results were produced.

Task/Activity: Program Design and Planning

The eight reviewers of this task, which included four members of the project advisory committee, all agreed that the criteria for evaluating this task had been achieved. This task/activity was also evaluated under the Product stage of the evaluation process.

Task/Activity: Curriculum Development

Eleven persons reviewed both the process and product of this task. It was the consensus of the reviewers that all seven of the criteria used to measure the achievement of this task had been met.

Task/Activity: Purchase of Instructional Materials

Seven persons, including one partner, responded to the questions used in determining if this task had been performed as proposed. All of the reviewers responded "yes" to questions used in evaluating this task.

Task/Activity: Student Training (phase I)

The reviewers of this task/activity did not agree that all of the criteria used in evaluating this task/activity had been met at 100 percent. One reviewer felt that based on his/her definition of "training plan" that individual training plans had not been developed. One reviewer felt that the training did not proceed as scheduled. Two of the respondents did not agree that student release time was sufficient. Comment made by these two reviewers were: "The students should have been allowed to attend training without having to donate their personal time i.e., lunch hour," and "Time was supposed to be given by Servicemaster, not 1 for 1." The reviewers agreed that all of the other criteria used in evaluating this task had been met.

The evaluations of the students for *student training* were positive. Fifty-three percent of the students responding to the questionnaire indicated that they desired to participate in additional training immediately. Although all of the students responding expressed a desire to participate in future training, two students did not feel that the coursework applied to their jobs.

Comments made by the responding students included:

"I really enjoyed the studies that we had. Thanks for all of your help."

"I greatly enjoyed the classes and our teacher was an absolute delight. I would love to take more classes. Thank you."

"I would like more time with computer operations."

"I enjoyed the training very much. My instructor, Melinda Ziegler, made me very comfortable in the classroom."

"I feel that the classes would be valuable to anyone willing to take them."

Task/Activity: Selection of a Qualified/Publisher Contractor

All of the individuals evaluating this task agreed that all of the evaluation criteria had been met.

Task/Activity: Development of Video Disc (IVD)

This task was evaluated by six project staff members, three project advisory committee members, and one staff member of the contractor. The evaluations of this task were performed prior to June 10, 1992. The evaluators of this task did not agree that the interactive video disc for the curriculum had been developed as proposed and within the timeframe established. Following are the comments made by evaluators who did not feel the task had been achieved as proposed:

"IVD not the only thing to address deficiencies--other methods used to address same needs identified by the literacy audit."

"At this time modifications to the IVD had not been received."

"IVD has yet to be completed."

Task/Activity: Interactive Videodisc Training

Three instructors and one project administration staff member reviewed the interactive videodisc training. Overall the reviewers agreed that the training was conducted as proposed. One evaluator did not agree that the training proceeded as scheduled. The comment of this evaluator was: "Due to late start training was delayed but progressed at projected rate."

Task/Activity: Program Design and Planning

Part of the program design and training evaluation data was presented under the evaluation stage of installation. The remaining part of the evaluation of this task/activity was performed under the product stage. The evaluators of the product stage for Program Design and Planning agreed that the produce criteria had been met.

Task/Activity: Student Achievement

Student achievement was evaluated on-site by five ServiceMaster supervisors of the student/employees and by the use of ABLE pretest and posttest.

Student achievement of Phase I training was evaluated by one supervisor (partner). The evaluator felt that there was a moderate increase in productivity as a result of the Phase I training. The evaluators' ratings were positive and would recommend that other employees needing literacy improvement be provided with the training.

Five of the supervisors evaluated student achievement following the IVD training. One of the supervisors felt that the student-employees as a group achieved an above average increase in productivity as a result on the training.

Two felt that there was not an increase in training and two felt that the student employees had made a moderate increase in productivity. One of the supervisors felt that the training had decreased the absenteeism of the student-employees.

All of the supervisors agreed that there was an improvement of the student-employees in the areas of communications and mathematical skills, and workplace

attitude as a result of the training.

All of the supervisors agreed that they would recommend the training for other employees needing literacy improvement. All of the supervisors agreed that student-employees participating in the IVD training made greater progress than those in training using traditional methods of teaching.

Objective 3: "Addressing the Computational Literacy Needs at the Management Level"

This objective was removed from the project during contract negotiations with the Department of Education.

Objective 4: "Conduct a complete evaluation of the project and, if results are as expected, prepare for dissemination of the program throughout the corporation and other educational institutions interested in serving ServiceMaster workers nationally and internationally."

Task/Activity: Oversight Committee

This task/activity was evaluated by the independent evaluator. It was found that the oversight committee, which is called the Project Transformation Committee, served the project as proposed. The independent evaluator attended all of the Oversight Committee meetings.

Task/Activity: Third-Party Evaluator

The third-party evaluator, referred to as the independent evaluator, was obtained as proposed. The third-party evaluator assisted the project staff in developing and implementing a project evaluation plan in accordance with the specifications agreed to in the contract negotiations with the Department of Education. The evaluation plan developed to guide in the evaluation of the project was reviewed and approved by the Oversight Committee.

Task/Activity: Field Test of the Interactive Videodisc

The field test was a joint activity between SETS, the contractor, TSTC and ServiceMaster. SETS had, as part of it's contract, the field test support, location and trial was coordinated between sites suggested by ServiceMaster and SETS with support from TSTC Waco. Out of 7 sites suggested by SETS only one was able to field test within the time frame of the grant. At this site, 29 people went through the field testing. The field test was completed and the successful results were reported to TSTC Waco.

Task/Activity: Management Plan

The management plan was initially set in place at the beginning of the grant. Reports of the progress of the grant were sent to all parties regularly as the activities progressed. Grant timelines and activities were addressed in these periodic reports. All parties were informed by the grant Director of progress and completion within the grant and the management plan was adhered to and followed.

Conclusion

Based on the observations made by the independent evaluator of the evaluation data collected, the project has achieved the goal of the demonstration project by developing, testing by implementation, and proven by student achievement a model program of applied Workplace Literacy. This model or demonstration program can be used throughout the nation by ServiceMaster, Inc. and adapted or replicated for use by other businesses and industries providing similar services and products.

It is conclusion of the independent evaluator and of the project manger that the project has achieved all of the objectives and tasks of the proposed project.

6. Report on any changes in key personnel.

Personel changes involved only instructors, who were not key personnel, for the training. Qualified instructors were used throughout the training program. Personnel changes also took place at ServiceMaster during the grant. ServiceMaster maintained their responsiblities to the grant.

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APPLIED WORKPLACE LITERACY PROJECT FOR THE FACILITIES MAINTENANCE INDUSTRY

Third Party Evaluation Report

Texas State Technical College

Waco, Texas

1992

APPLIED WORKPLACE LITERACY PROJECT FOR THE FACILITIES MAINTENANCE INDUSTRY

Third Party Evaluation Report

Prepared
by
Bill E. Lovelace

1992

EVALUATION OF THE APPLIED WORKPLACE LITERACY DEMONSTRATION PROJECT FOR THE FACILITIES MAINTENANCE INDUSTRY

Report of Third Party Evaluator

Background

Evaluation of education efforts is a common, necessary requirement of all projects financed by State and Federal Agencies. Program or project evaluations have been used as a mechanism to identify which innovations succeeded and which did not. However, evaluation has not been an area of concentration by many individual educators. The nebulous nature of too many products of human learning and education activities has contributed to this lack of concentration.

The need for developing and using an appropriate evaluation for the program or project to be evaluated has been indirectly emphasized by Alan Ginsburg, who stated:

> *One criticism was that evaluators showed a preoccupation with measuring overall program impacts, particularly test score changes, while achievement outcomes are important, they don't tell the whole story. "Black box" evaluations that ignore program processes are particularly frustrating in that, by themselves, they fail to indicate how to improve poorly performing programs.*[1]

With these evaluation concerns in mind, staff and consultants of the Applied Workplace Literacy for the Facilities Maintenance Industry developed and used a project evaluation plan that combined three stages. The first stage of the plan was to obtain formative

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[1]Ginsburg, Alan et al, *Reinvigorating Program Evaluation at the U.S. Department of Education*, EDUCATIONAL RESEARCHER, Vol. 21, Number 3, April 1992

information related to the installation of the project. The second stage dealt with process and was used to ensure that the activities of the project management plan would achieve the stated project objectives. The third stage of the evaluation plan, in a summative mode, was designed to provide information on the project products and achievements.

The goal of the demonstration project "Applied Workplace Literacy for the Facilities Maintenance Industry" was to develop a pilot workplace training program that could be a model for basic skills instruction for the majority of Service Master's thousands of support service employees worldwide.

Each project objective was analyzed for the purpose of identifying tasks or activities that were to be performed in the achievement of each of the four project objectives. Each of the tasks/activities identified by an analysis of each objective was categorized by each of the three stages of the evaluation. For each task/activity selected for review (evaluation), persons to be involved in the review of each task/activity were identified. Questions or criteria were developed for evaluating each task/activity performed and/or product produced. The responses of the reviewers of each task/activity and/or product are reported by evaluation stage in the following narrative.

Presentation of Evaluation Data

The evaluation of the project was conducted using a series of survey forms for the task/activities to be evaluated. Following, organized into three evaluation stages, are the responses to the questions on the survey forms.

Installation Stage

Task/Activity: Project Management Plan

The persons involved in the review of this task/activity included three instructors, one partner, three project administrative staff members, one other project staff member, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were individual tasks listed and distributed by project objective?	Yes 100 No ___
2. Were milestones and timelines established by tasks and objectives?	Yes 100 No ___
3. Did the management plan provide for modifications and revisions as needed?	Yes 100 No ___
4. Was the management plan shared with all parties involved in the project?	Yes 100 No ___

Task/Activity: Evaluation Plan

The persons involved in the review of this task/activity included two instructors, one partner, one other project staff member, two project administrative staff member, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were you as a member of the project staff, participating partner, or Third party evaluator involved in the development of the evaluation plan?	Yes 100 No ___

2. Do you feel that the evaluation plan provided for the collection of information that would include both qualitative and quantitative measure?	Yes 100 No ___
3. Did the evaluation plan include both formative and summative evaluation?	Yes 100 No ___
4. Is the project being evaluated in accordance with the evaluation plan?	Yes 100 No ___

Task/Activity: Dissemination Plan

The persons involved in the review of this task/activity included three instructors, and four project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Was the dissemination plan installed as proposed?	Yes 100 No ___
2. Were each of the avenues (activities) for project dissemination described in the plan used?	Yes 100 No ___
3. Are there indicators that the dissemination plan was effective?	Yes 100 No ___

Task/Activity: Staff Development

The persons involved in the review of this task/activity included four instructors and four project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Was a staff development plan in place?	Yes 100 No ___

2. If a staff development plan was not in place, was one developed?	Yes 100 No ___
3. Was the existing plan revised or a new plan developed to provide for staff development needs unique to the project staff?	Yes 100 No ___
4. Has the staff development plan been implemented for project staff?	Yes 100 No ___
5. Does the staff development plan appear to be meeting the professional development needs of the project staff?	Yes 100 No ___

Task/Activity: Needs Assessment

The persons involved in the review of this task/activity included three instructors, one partner, two project administrative staff members, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Do you feel that appropriate tools (tests, interview, counseling) were used to determine the training needs of the students?	Yes 100 No ___
2. Were the tools used appropriately for determining the training needs of students?	Yes 100 No ___
3. Do you feel that appropriate tools were used to determine the level of instruction that should be provided for each student?	Yes 100 No ___
4. Do you feel that the results of the training needs assessment were used in the planning and the delivery of instruction?	Yes 100 No ___

Task/Activity: Test Selection

The persons involved in the review of this task/activity included two instructors, one partner, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were tests selected to meet the proposed purpose of testing?	Yes 100 No ___

Process Stage

Task/Activity: Literacy Audit

The persons involved in the review of this task/activity included five instructors, four project advisory committee members, three project administrative staff members, one partner, and twenty-three students. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Was the literacy audit conducted as proposed?	Yes 100 No ___
2. Did the literacy audit produce the products (results) proposed for the project?	Yes 100 No ___
3. Were the findings of the literacy audit sufficient to develop a competency-based curriculum(s)?	Yes 100 No ___
4. Did the literacy audit identify both competencies and tasks of required basic skills?	Yes 100 No ___

Task/Activity: Test Selection

The persons involved in the review of this task/activity included two instructors, one partner, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were the tests selected capable of determining the anticipated increase in worker's reading/ writing/mathematics skill levels?	Yes 100 No ___
2. Were the tests administered as proposed?	Yes 100 No ___
3. Were the results of the tests used as proposed?	Yes 100 No ___
4. Were standardized tests used?	Yes 100 No ___

Task/Activity: Task Analysis

The persons involved in the review of this task/activity included two instructors, two project administrative staff members, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Was an accepted occupational analysis procedure used to identify the tasks of each competency identified in the literacy audit?	Yes 100 No ___
2. Was a proven task analysis procedure used?	Yes 100 No ___
3. Was an analysis made of all identified tasks?	Yes 100 No ___
4. Were instructional topics (knowledge and performance) identified by each task analysis?	Yes 100 No ___

5. Were the results of the task analysis compared with existing curricula and instructional content at TSTC Waco? — Yes 100 No ___

Task/Activity: Program Design and Planning

The persons involved in the review of this task/activity included two instructors, four project advisory committee members, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Was the program designed and planned as described in the proposal?	Yes 100 No ___
2. Were the appropriate personnel used in designing the program as proposed?	Yes 100 No ___
3. Were the proposed factors such as logistics and identified needs used in the design of the program?	Yes 100 No ___

Task/Activity: Curriculum Development

The persons involved in the review of this task/activity included three instructors, four project advisory committee members, two project administrative staff members, one contractor (SETS), and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were the curricula developed using the results of the literacy audit?	Yes 100 No ___

Process Stage

2. Was the instructional content of the curricula developed based on the results of the analysis of each identified task?	Yes 100 No ___
3. Were objectives of existing instructional content modified to meet the instructional content required by the literacy audit?	Yes 100 No ___
4. Are the curricula competency-based?	Yes 100 No ___
5. Were individual differences in learning provided for in the instructional materials?	Yes 100 No ___
6. Were appropriate methods for the delivery of instruction provided for each lesson?	Yes 100 No ___
7. Was sufficient time provided to allow for skills improvement in the training schedule?	Yes 100 No ___

Task/Activity: Instructional Materials (Purchased)

The persons involved in the review of this task/activity included three instructors, one partner, one contractor, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were appropriate and sufficient instructional materials obtained that would implement the curriculum?	Yes 100 No ___
2. Were modifications of the materials made when necessary?	Yes 100 No ___
3. Were the materials field tested with students?	Yes 100 No ___

Task/Activity: Hardware and Software Selection

The persons involved in the review of this task/activity included two instructors, one other project staff member, one contractor, and four project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were the evaluation procedures and standards developed for the selection of hardware and software based on the proposed methods of delivery of instruction described in the program design?	Yes 100 No ___
2. Did the selected hardware and software meet the requirements of the delivery methods described in the program design?	Yes 100 No ___
3. Did the software and hardware provide for the individual learning styles of trainees?	Yes 100 No ___

Task/Activity: Student Training

The persons involved in the review of this task/activity included three instructors and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were individual training plans developed for each student?	Yes 92 No 8
2. Did the individual training plans reflect the results of the needs assessment for the respective student?	Yes 100 No ___
3. Did the training proceed as scheduled?	Yes 92 No 8
4. Did the majority of the students achieve the training (instructional) objectives?	Yes 100 No ___

Process Stage

5. Was the training evaluated by staff and students? Yes 100 No ___
6. Was the time established for training sufficient? Yes 100 No ___
7. Were sufficient resources made available for training? Yes 100 No ___
8. Was student release time for training sufficient? Yes 76 No 16

Student Training was also evaluated by some of the students. Following are the responses of students who were asked to evaluate the training.

Evaluation Question	Number of students responding, by rating	
1. The amount of time allowed for this course was:	Too little	1
	About right	15
	Too much	0
2. The amount of work assigned was:	Too little	1
	About right	15
	Too much	0
3. The coursework applies to my job:	Not at all	3
	Somewhat	10
	Frequently	3
4. I wish to participate in another class:	Never	0
	Later	8
	Immediately	9
5. The time of day for this class was:	Too early	0
	About right	15
	Too late	1
6. I would like more training in:	Reading	4
	Writing	5
	Math/Physics	7
	Computer	15

Task/Activity: Selection of a Qualified Publisher/Contractor

The persons involved in the review of this task/activity included three instructors, one contractor, and four project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions		Percent of Reviewers Responding
1.	Were capability and bid evaluation criteria established?	Yes 100 No ___
2.	Was a bid proposal format developed and used?	Yes 100 No ___
3.	Were state guidelines and bid procedures followed?	Yes 100 No ___
4.	Was a bid proposal evaluation form developed and used?	Yes 100 No ___
5.	Was the response to the bid proposals done in a timely manner?	Yes 100 No ___

Product Stage

Task/Activity: Development of Interactive Video Disc (IVD)

The persons involved in the review of this task/activity included three instructors, three project advisory committee members, three project administrative staff members, and one contractor. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Was the IVD developed as proposed?	Yes 90 No 10
2. Did the IVD meet contract specifications?	Yes 80 No 20
3. Does the IVD provide for the development of all skills identified by the literacy audit and the task analysis?	Yes 80 No 10

Task/Activity: Interactive Videodisc Training

The persons involved in the review of this task/activity included three instructors and one project administrative staff member. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Did the IVD training proceed as scheduled?	Yes 75 No 25
2. Did the IVD training meet the instructional objectives as determined by the literacy audit?	Yes 100 No ___
3. Was the IVD training evaluated by students and staff?	Yes 100 No ___
4. Was the time established for IVD training sufficient?	Yes 100 No ___
5. Were sufficient resources needed to supplement the IVD training made available?	Yes 100 No ___

Task/Activity: Project Management Plan

The persons involved in the review of this task/activity included three instructors, one partner, four project administrative staff members, one contractor, and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were the milestones and timelines met as established?	Yes 89 No 11
2. Were revisions made as the result of unforeseen barriers that were not under the control of project management?	Yes 100 No ___

Task/Activity: Program Design and Planning

The persons involved in the review of this task/activity included two instructors, four project advisory committee members, and two project administrative staff members. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Were the proposed resources used in the design?	Yes 100 No ___
2. Were additional resources identified?	Yes 100 No ___
3. Were the total resources sufficient?	Yes 100 No ___
4. Were provisions made in the design to assure the curricula would be competency-based?	Yes 100 No ___
5. Were the proposed methods of delivery used in the design?	Yes 100 No ___

Task/Activity: Student Achievement

The persons involved in the review of this task/activity consisted of one partner. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Rate the increase in the productivity of all employees as a group after training by checking one of the statements below which best indicates your rating of increased productivity:	
___ 1. No increase in productivity	___
___ 2. Some increase in productivity	___
___ 3. Moderate increase in productivity	100

___ 4. Above average increase in productivity ___

___ 5. High increase in productivity ___

2. Was there improvement in communications and mathematical skills of employees? Yes 100 No ___

3. Was there improvement in the workplace attitude of employees? Yes 100 No ___

4. Was there a decrease in absenteeism of employees? Yes 100 No ___

5. Would you recommend that other employees needing literacy improvement be provided this training? Yes 100 No ___

Task/Activity: Students with IVD Training

The persons involved in the review of this task/activity included five partners. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.

Questions	Percent of Reviewers Responding
1. Rate the increase in the productivity of all employees as a group after training by checking one of the statements below which best indicates your rating of increased productivity:	
___ 1. No increase in productivity	40
___ 2. Some increase in productivity	___
___ 3. Moderate increase in productivity	40
___ 4. Above average increase in productivity	20
___ 5. High increase in productivity	___

2. Was there improvement in communications and mathematical skills of employees?	Yes 100 No ___
3. Was there improvement in the workplace attitude of employees?	Yes 100 No ___
4. Was there a decrease in absenteeism of employees?	Yes 20 No 80
5. Would you recommend that other employees needing literacy improvement be provided this training?	Yes 100 No ___
6. Do you feel that students (employees) participating in IVD training made greater progress in training using traditional methods of teaching?	Yes 100 No ___

Task/Activity: Evaluation Plan IVD Field Test

[The persons involved in the review of this task/activity included instructors, project advisory committee members, project administrative staff and the independent evaluator. Following are the responses of the reviewers for each question used for the evaluation of this task/activity.]

Questions	Percent of Reviewers Responding
1. Was the field test conducted as proposed?	Yes 33 No 67
2. Were the evaluations of the IVD by the employees (students) positive?	Yes 100 No__
3. Were the positive evaluations of IVD by students at the field test sites documented?	Yes 100 No__
4. Were the assessments of IVD made by the adult education specialists at the field test sites positive?	Yes 100 No__
5. Did Service Master supervisors at each site feel that the IVD would be applicable for their staff?	Yes 100 No__

6. Did the IVD meet the specific objectives of the instructional program? Yes 100 No__

7. Did the training meet the intent of the grant? Yes 100 No__

8. Did the training meet the training needs identified by the literacy audit? Yes 100 No__

Summary of Evaluation Findings

The summary of the evaluation findings are reported by task/activity in relation to the project objective for which the task/activity was performed.

Objective 1: "Conduct a thorough needs assessment/literacy audit on which to base the design of the program."

Task/Activity: Selection of Literacy Tests

Five persons were selected to respond to the questions used in the evaluation of this task. All five of the respondents agreed that this task was performed as proposed.

Task/Activity: Literacy Audit

Thirty-six persons which included twenty-three students responded to the four evaluation question s for this task/activity. All thirty-six respondents agreed that the literacy audit was conducted as proposed and achieved the purposes for which the literacy audit was performed.

Objective 2: "Conduct Phase I Training"

Task/Activity: Task Analysis

Two instructors, two project administrative staff, and the independent evaluator reviewed both the process and products of the task analysis. All reviewers agreed that the task analysis was conducted as proposed and the expected results were produced.

Pre and post tests using ABLE were administered at the Waco site and at the one field test site. The results of the pre and post test for the Waco site are presented in table 1. The average gain for the class between the pre and post test at the Waco site was eight percent. Table 2 shows the results of the evaluation of the training made by students at the Waco site. Table 3 shows the results of the pre and post tests used at the Ivey Tech field test site. The average gain for the class at the Ivey Tech site was 7.7 percent. The results of the students evaluation of the instruction at Ivey Tech are presented in Table 4.

TABLE 1

Comparison of pretest and posttest scores made by students on the ABLE test at Waco.

Student	Pretest Score	Posttest Score	Points Gained
1	75	87	12
2	83	87	4
3	69	71	2
4	67	82	15
5	67	82	15
6	70	76	6
7	87	92	5
8	84	86	2
9	87	86	-1
10	82	91	9
11	64	80	16
12	82	83	1
13	83	88	5
14	70	73	3
15	60	89	29
16	80	85	5
17	70	85	15
18	68	77	9
19	88	94	6
20	91	86	-5
21	77	93	16
22	86	94	8
23	77	82	5
24	64	85	21
25	84	93	9
26	86	91	5
27	91	91	0

Mean of points gained: 8.0

Table 2

WACO WORKPLACE EDUCATIONAL SKILLS TRAINING

Student Program Evaluation

(1)	1	Too little
The amount of time allowed for this course was:	15	About Right
	0	Too much
(2)	1	Too little
The amount of work assigned was:	15	About Right
	0	Too much
(3)	3	Not at all
The coursework applies to my job:	10	Somewhat
	3	Frequently
(4)	0	Never
I wish to participate in another class:	8	Later
	9	Immediately
(5)	0	Too early
The time of day for this class was:	15	About right
	1	Too late
(6)	4	Reading
I would like more training in:	5	Writing
	7	Math/Physic
	15	Computer

Table 3

Comparison of pretest and posttest scores made by students on ABLE test at Ivey Tech.

Student	Pretest Score	Posttest Score	Points Gained
1	35	80	45
2	75	85	10
3	75	85	10
4	85	80	-5
5	75	85	10
6	80	80	0
7	85	90	5
8	80	85	5
9	75	80	5
10	80	85	5
11	80	85	5
12	75	85	10
13	85	90	5
14	75	85	10
15	80	80	0
16	75	85	10
17	70	85	15
18	75	85	10
19	80	85	5
20	75	85	10
21	85	85	0
22	75	80	5
23	75	85	10
24	80	85	5
25	75	85	10
26	70	85	15
27	85	80	5

Mean of the Points Gained: 7.78

Table 4
Ivy Tech Pilot Site Results
Workplace Educational Skills Training
Student Program Evaluation

(1) The amount of time allowed for this course was:	7 20 1	Too little About right Too Much
(2) The amount of work assigned was:	2 23 4	Too little About right Too much
(3) The coursework applies to my job:	4 16 8	Not at all Somewhat Frequently
(4) I wish to participate in another class:	3 18 7	Never Later Immediately
(5) The time of day for this class was:	0 28 0	Too early About right Too late
(6) I would like more training in:	2 0 7 16	Reading Writing Math/Physics Computer

Task/Activity: Program Design and Planning

The eight reviewers of this task, which included four members of the project advisory committee, all agreed that the criteria for evaluating this task had been achieved. This task/activity was also evaluated under the Product stage of the evaluation process.

Task/Activity: Curriculum Development

Eleven persons reviewed both the process and product of this task. It was the consensus of the reviewers that all seven of the criteria used to measure the achievement of this task had been met.

Task/Activity: Purchase of Instructional Materials

Seven persons, including one partner, responded to the questions used in determining if this task had been performed as proposed. All of the reviewers responded "yes" to questions used in evaluating this task.

Task/Activity: Student Training (phase I)

The reviewers of this task/activity did not agree that all of the criteria used in evaluating this task/activity had been met at 100 percent. One reviewer felt that based on his/her definition of "training plan" that individual training plans had not been developed. One reviewer felt that the training did not proceed as scheduled. Two of the respondents did not agree that student release time was sufficient. Comment made by these two reviewers were: "The students should have been allowed to attend training without having to donate their personal time i.e., lunch hour," and "Time was supposed to be given by Servicemaster, not 1 for 1." The reviewers agreed that all of the other criteria used in evaluating this task had been met.

The evaluations of the students for *student training* at the Waco site were positive. Fifty-three percent of the students responding to the questionnaire indicated that they desired to participate in additional training immediately. Although all of the students responding expressed a desire to participate in future training, two students did not feel that the coursework applied to their jobs.

Comments made by the responding students included:

"I really enjoyed the studies that we had. Thanks for all of your help."

"I greatly enjoyed the classes and our teacher was an absolute delight. I would love to take more classes. Thank you."

"I would like more time with computer operations."

"I enjoyed the training very much. My instructor, Melinda Ziegler, made me very comfortable in the classroom."

"I feel that the classes would be valuable to anyone willing to take them."

Task/Activity: Selection of a Qualified/Publisher Contractor

All of the individuals evaluating this task agreed that all of the evaluation criteria had been met.

Task/Activity: Development of Video Disc (IVD)

This task was evaluated by six project staff members, three project advisory committee members, and one staff member of the contractor. The evaluations of this task were performed prior to June 10, 1992. The evaluators of this task did not agree that the interactive video disc for the curriculum had been developed as proposed and within the timeframe established. Following are the comments made by evaluators who did not feel the task had been achieved as proposed:

"IVD not the only thing to address deficiencies--other methods used to address same needs identified by the literacy audit."

"At this time modifications to the IVD have not been received."

"IVD has yet to be completed."

Task/Activity: Interactive Videodisc Training

Three instructors and one project administration staff member reviewed the interactive videodisc training. Overall the reviewers agreed that the training was conducted as proposed. One evaluator did agree that the training proceeded as

scheduled. The comment of this evaluator was: "Due to late start training was delayed but progressed at projected rate."

Task/Activity: Program Design and Planning

Part of the program design and training evaluation data was presented under the evaluation stage of installation. The remaining part of the evaluation of this task/activity was performed under the product stage. The evaluators of the product stage for Program Design and Planning agreed that the product criteria had been met.

Task/Activity: Student Achievement

Student achievement was evaluated on-site by five Service Master supervisors of the student-employees and by the use of ABLE pretest and posttest.

Student achievement of Phase I training was evaluated by five supervisors of Service Master. The evaluator felt that there was an above average increase in productivity as a result of the Phase I training. The evaluator observed that the supervisor's ratings were positive and would recommend that other employees needing literacy improvement be provided with the training.

Five of the supervisors evaluated student achievement following the IVD training. One of the supervisors felt that the student-employees as a group achieved an above average increase in productivity as a result of the training.

Two felt that there was not increase in training and two felt that the student-employees had made a moderate increase in productivity. One of the supervisors felt that the training had decreased the absenteeism of the student-employees.

All of the supervisors agreed that there was in improvement of the student-employees in the areas of communications and mathematical skills, and workplace attitude as a result of the training.

All of the supervisors agreed that they would recommend the training for other employees needing literacy improvement. All of the supervisors agreed that student-employees participating in the IVD training made greater progress than those in training using traditional methods of teaching.

Objective 3: "Addressing the Computational Literacy Needs at the Management Level"

This objective was removed from the project during contract negotiations with the Department of Education.

Objective 4: "Conduct a complete evaluation of the project and, if results are as expected, prepare for dissemination of the program throughout the corporation and other educational institutions interested in serving SM workers nationally an internationally."

Task/Activity: Oversight Committee

This task/activity was evaluated by the independent evaluator. It was found that the oversight committee, which is called the Project Transformation Committee, served the project as proposed. The independent evaluator attended all of the Oversight Committee meetings.

Task/Activity: Third-Party Evaluator

The third-party evaluator, referred to as the independent evaluator, was obtained as proposed. The third party evaluator assisted the project staff in developing and implementing a project evaluation plan in accordance with the specifications agreed to in the contract negotiations with the Department of Education. The evaluation plan developed to guide in the evaluation of the project was reviewed and approved by the Oversight Committee.

Task/Activity: Field Test of the Interactive Videodisc

It was proposed that the interactive videodisc training would be field tested a ten sites selected by the business/industry Partner of the project. Due to an unforeseen change in the administration of the Partner, the field tests were not made at the ten sites. The field test was made at one site long after the scheduled dates for the field tests.

The findings from the field test were similar to those of training conducted using the interactive videodisc on the Waco campus. The Partner's evaluations of the interactive videodisc field test were all positive except for the question "Was the field test conducted as proposed?"

Based on the information provided to the third party evaluator, the Texas State Technical College at Waco, Texas was not as fault for this task not being achieved as proposed.

Task/Activity: Management Plan

The project staff developed a management using the Program Evaluation Review Technique and Management by Objective following grant approved by the U.S.

Department of Education. The evaluation plan of the project was developed to parallel the management plan.

The management plan used for this project was developed by analyzing each objective for identifying and scheduling major tasks to be performed. Activities were identified and listed for each of the major tasks. This structure of the management plan provided for the interaction of organizational structure, performance of individuals, and a monitoring procedure of activity and quality control using a projected time frame for the completion of each task and objective.

With the exception of the proposed field test of the interactive video disc, adjustments were made to the management plan without detriment to the project.

It was observed that the field tests were not conducted as proposed due to administrative changes of the Partner, Service Masters Inc. Service Masters was only able to arrange for a field test at one site.

Conclusion

Based on the observations made by the independent evaluator of the evaluation data collected, the project has achieved the goal of the demonstration project by developing, testing by implementation, and proven by student achievement a model program of applied Workplace Literacy. This model or demonstration program can be used throughout the nation by Service Master, Inc. and adapted or replicated for use by other businesses and industries providing similar services and products.

It is my conclusion that the project has achieved all of the objectives and tasks of the proposed project. It is also concluded, that the use of the interactive for workplace literacy training is more effective than are traditional methods and educational technologies.

Bill E. Lovelace

Bill E. Lovelace, Independent Evaluator December 28, 1992